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F-16 PEACETIME TRAINING FOR  
COMBAT OPERATIONS

A thesis presented to the Faculty of the U.S. Army  
Command and General Staff College in partial  
fulfillment of the requirements for the  
degree

MASTER OF MILITARY ART AND SCIENCE

by

JOHN D. ROOSA, MAJ, USAF  
B.S., United States Air Force Academy, 1984

Fort Leavenworth, Kansas

1998

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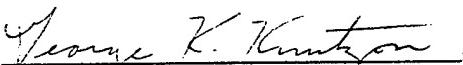
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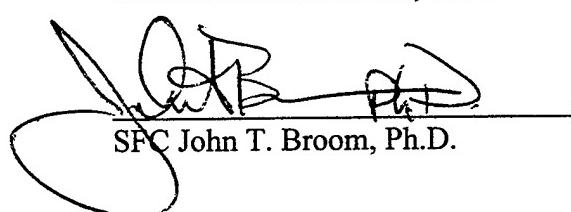
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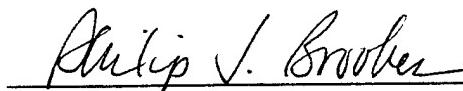
  
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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

## ABSTRACT

F-16 PEACETIME TRAINING FOR COMBAT OPERATIONS by MAJ John D. Roosa,  
USAF, 85 pages

This study investigates the relationship between peacetime F-16 training and expected combat operations. The F-16 is the primary interdiction platform in the United States Air Force. F-16 pilots fly peacetime training sorties to maintain proficiency, develop tactics and complete evaluations. The training activities accomplished on these missions are designed to prepare the pilot for successful combat employment. A training program ensures each pilot completes the necessary amount of sorties and events to achieve combat ready status. This study analyzes the components of the peacetime training program and their overall applicability for future conflict. The study encompasses the entire training program from higher headquarters directives down to specific flying sorties.

## PREFACE

Over the past fourteen years in the Air Force, I spent a great deal of time training pilots to become better aviators. In this capacity, I developed the habit of analyzing the various training techniques and procedures to determine if what I was teaching helped a pilot increase his aviator skills. When it came to combat training, I wanted to ensure the established training system enabled a pilot to meet his mission objectives while minimizing his prospects of becoming a casualty of war.

I began my Air Force career as an instructor pilot in the T-38 aircraft. This is the high performance jet aircraft that students fly when training to become Air Force pilots. After spending four years instructing in the T-38, I began flying the F-16 in 1989. My first assignment was a four-year tour flying Block 30 and Block 50 F-16s at Spangdahlem Air Base, Germany. During this tour, I became an instructor pilot (IP) in the F-16. At the end of this assignment, I was selected to attend the Weapons Instructor Course, also known as Weapons School, at Nellis Air Force Base, Nevada. Upon completion of this course, I was assigned to Hill AFB as a Block 40 F-16 pilot. I remained at this location until 1997 when I entered the Army Command and General Staff College. During the course of my Air Force experiences, I have flown eighty combat sorties and amassed over 3,000 flying hours.

Throughout my Air Force career and specifically while flying the F-16, I have always been intrigued as to how the training programs relate to perceived combat operations. I suppose this trait intensified during the Persian Gulf war as the Air Force

conducted an air war employing tactics and techniques really never fully developed before the conflict. For years, the tactical aircraft in the U.S. Air Force practiced “low altitude” operations as they prepared for a conflict in Western Europe. Fortunately, the pilots had the time during DESERT STORM to reshape their thinking on the upcoming tactical war and modify their actions accordingly. This war appeared to set the stage for a paradigm shift in the employment of tactical aircraft.

But just as soon as this conflict was over, the Air Force reverted to the training practices employed prior to the war, only with a few modifications added. In Germany, even though the Berlin Wall had “fallen,” the Warsaw Pact had crumbled and Germany reunified, pilots were stuck in the same old training routine developed over years and years of Cold War activity. As a collective unit, pilots were training with a “rear-view mirror” mindset rather than developing a training plan based on a forward-looking point of view.

This idea became even more evident when I started flying the Low Altitude Navigation Targeting Infrared for Night (LANTIRN) mission at Hill Air Force Base. My perception is that the F-16 community had developed a mission to meet the hardware as opposed to employing hardware to meet the mission. What I mean by this statement is that pilots were flying night low-altitude missions simply because they had the means to do so and no serious thought was given to the prospects of surviving such a mission in a high-threat environment. Several related discussions evolved from this idea during my tour at Hill Air Force Base. The wing weapons officers literally spent hours trying to imagine a scenario where F-16s would employ in a low-altitude environment and still

retain the survivability and probability of success required for sustained combat operations.

It is not my intent to suggesting that the F-16 community give-up previously established capabilities anytime it cannot find a current situation in which to use this capability. I am simply suggesting that if a development occurs which provides a better way to accomplish the mission, then pilots should adapt quickly to this approach and not waste time and resources doing it the old way. From my point of view, the LANTIRN is a classic example of this type of mentality. Although we now have the capability to accurately strike targets with stand-off weapons or employ weapons tied to the Global Positioning Satellite (GPS) and achieve a high degree of success, LANTIRN units continue to train as though this would be the primary tactic used in the next conflict.

This is the primary motivation behind my choice to dedicate my time and efforts on a thesis involving training, and specifically F-16 training. My personal belief is that pilots continuously train with a historical perspective instead of adapting to the realities of the threats and capabilities of our near-term potential enemies. It was with this notion that I conducted this thesis project.

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## LIST OF ABBREVIATIONS

AI	Air Interdiction
BMC	Basic Mission Capable
CGSC	Command and General Staff College
CINC	Commander in Chief
CMR	Combat Mission Ready
CT	Continuation Training
DACT	Dissimilar Air Combat Training
DOC	Designed Operational Capabilities
FLIR	Forward-Looking Infra red
GCC	Graduated Combat Capabilities
GPS	Global Positioning Satellite
HARM	High Speed Anti Radiation Missile
IQT	Initial Qualification Training
LANTIRN	Low Altitude Navigation Targeting Infrared for Night
LGB	Laser Guided Bomb
MAJCOM	Major Command
MCI	Multi Command Instruction
MMAS	Master of Military Art and Science
MQT	Mission Qualification Training
NVG	Night Vision Goggles

OI	Operating Instruction
RAP	Ready Aircrew Program
RTRB	Realistic Training Review Board
SAT	Surface Attack Tactics
SEAD	Suppression of Enemy Air Defense
TFR	Terrain Following Radar
TRADOC	Training and Doctrine Command
UJTL	Uniformed Joint Task List
USAF	United States Air Force

## CHAPTER 1

### INTRODUCTION

This thesis focused upon the training practices of the Block 40 F-16 units. The Block 40 is the primary F-16 interdiction aircraft used by the United States Air Force (USAF). The central thesis question addressed in this study was as follows: Are the USAF F-16 interdiction squadrons properly preparing for the next conflict? The answer to this question is of paramount importance because of what is at stake if the training is wrong. Realistic peacetime training is the key to successful wartime operations. This study analyzed each component of the training system and evaluated its effectiveness as pilots practice to fight the next battle.

In order to maximize combat effectiveness, it is crucial that the day-to-day training is conducted in an efficient and pragmatic manner. In the age of diminishing budgets, airspace, and resources, peacetime preparation must be focused upon realistic tactics and viable employment techniques. Improper training leads to inefficiency, flawed tactics, and an incorrect assumption of combat capability. In a drastic sense, poor training can result in the unneeded loss of life.

The Block 40 F-16 is the platform of choice when conducting interdiction operations. This aircraft will conduct the majority of the air interdiction (AI) effort assigned to F-16 units during the next conflict. Joint Publication 3-03, *Doctrine for Joint Interdiction Operations*, defines the objective of interdiction as an attack against the enemy by primarily targeting their tactical and operational infrastructure.<sup>1</sup> The concept of interdiction involves the use of force against enemy forces before they can influence

the land battle. An example of interdiction is the bombing of a vehicle convoy as it moves towards the battle. In this cited example, pilots flying the F-16 possess the capability to deliver general purpose or laser-guided bombs in an attack to destroy, disrupt or neutralize the targets.

### The Training Process

In order to satisfy combat requirements, each F-16 squadron conducts peacetime training in preparation for wartime tasking. The design of this training evolves from four primary sources: (1) major command (MAJCOM) directives, (2) peacetime exercises, (3) squadron leadership input, and (4) flight leadership during daily unit training. These factors form the foundation of day-to-day mission training. In order to develop a frame of reference, the following sections provide a description of each component and detail how these training factors are synthesized to develop a mission profile.

#### MAJCOM Directives

The first issue deals with higher headquarters directives. The USAF has a staff at the headquarters level, known as the MAJCOM, which develops a yearly training cycle for each aircraft in the USAF inventory. This training cycle is published in an Operation Instruction (OI) and distributed to the flying units throughout the MAJCOM's area of responsibility. Pilots assigned to these flying units are responsible for fulfilling the training activities detailed in the OI. If they do not complete this training, they could be barred from combat activities and ultimately grounded from flying activity.

These training activities directed by the MAJCOM fall into three broad areas: (1) a required number of a particular type of sortie, (2) a specific task to be accomplished

during the mission, and (3) currency items to be accomplished at regular intervals. An illustration of the first area is a pilot must fly twenty air-to-air sorties every training year-air-to-air is the designated type of sortie. An example of the second category is a pilot must use his secure radio to employ countermeasures fifteen times each year. It is a specific event that occurs within the sortie. The last area involves currency items. These are requirements that the pilots perform at regular intervals to stay proficient for safety reasons. An example of this is a precision instrument approach. The pilot is required to fly this type of approach every twenty-one days to maintain currency. To review, a pilot must accomplish a minimum number of sortie types, a minimum number of specific events, and conduct specific training at regular intervals.

As the pilots in a squadron accomplish the required MAJCOM directed events, they record this activity on a tracking sheet. Each week, the squadron training shop uses these tracking sheets to tally-up the accomplished activities. The completed activities are entered into a computer-based spreadsheet and a requirements sheet is generated reflecting the remaining training activities, commonly known as squares. The resulting computer product is used by squadron training personnel and the unit to track a pilot's progression as the training cycle moves through its course.

### Peacetime Exercises

Peacetime exercises comprise the second component of the training system. These exercises are designed to increase proficiency and evaluate combat employment tactics. Examples of major exercises and competitions include Red Flag, Green Flag, Cope Thunder, William Tell, Gun Smoke, and Long Shot. These events provide the

units the opportunity to validate their daily training practices in large-scale simulated combat environments. Normally, the friendly air forces will attempt to fulfill a tasked mission while engaging hostile forces. In the exercises (Red Flag, Green Flag and Cope Thunder), the results are tabulated and a mass debrief is conducted for those involved in the mission. During the debrief, lessons learned are drawn-out and discussed so the units gain a benefit from the training. In the competitions (William Tell, Gun Smoke and Long Shot), the results are scored, points awarded and winners/losers are determined. Again, the thrust of these type activities is to validate the quality of a unit's training and provide a prospective on relative combat effectiveness.

#### Squadron Leadership Input

In addition to MAJCOM directives and peacetime exercises, squadron leadership influences the daily flying training activities. This direction is provided by the squadron commander, the operations officer, the flight commanders and the weapons officer. Each one of these individuals has the authority to dictate certain task or missions to be flown during day-to-day training. An example of this could be the weapons officer requiring all pilots to fly a supervised Dissimilar Air Combat Training (DACT) prior to participating in a Red Flag exercise. Normally the events prescribed by the squadron leadership are in-line with MAJCOM requirements but this may not always be the case--sometimes these activities may be very particular in nature and not specifically tasked by MAJCOM regulations.

## Flight Leadership

The last factor in the training equation is the quality of the flight leadership exhibited on the actual sortie. This factor is the most important aspect of training but one of the most difficult to objectively assess and measure. Generally, the mission profile is determined solely by the flight-lead. The flight-lead determines what will be accomplished on a mission, which pilot(s) will accomplish it and how it will be done. It is the prerogative of the flight-lead to determine the objectives of the sortie, the tactics to be employed, the threat presentation, and the desired learning objectives desired from the mission. The bottom line is if the flight-lead does a solid job of conducting the flight, valuable training experience is gained. Conversely, if the flight-lead mismanages the sortie, it can result in a waste of resources and little is gained from the flight. Normally, a squadron maintains a quality control system monitored by the weapons officer and flight commanders.

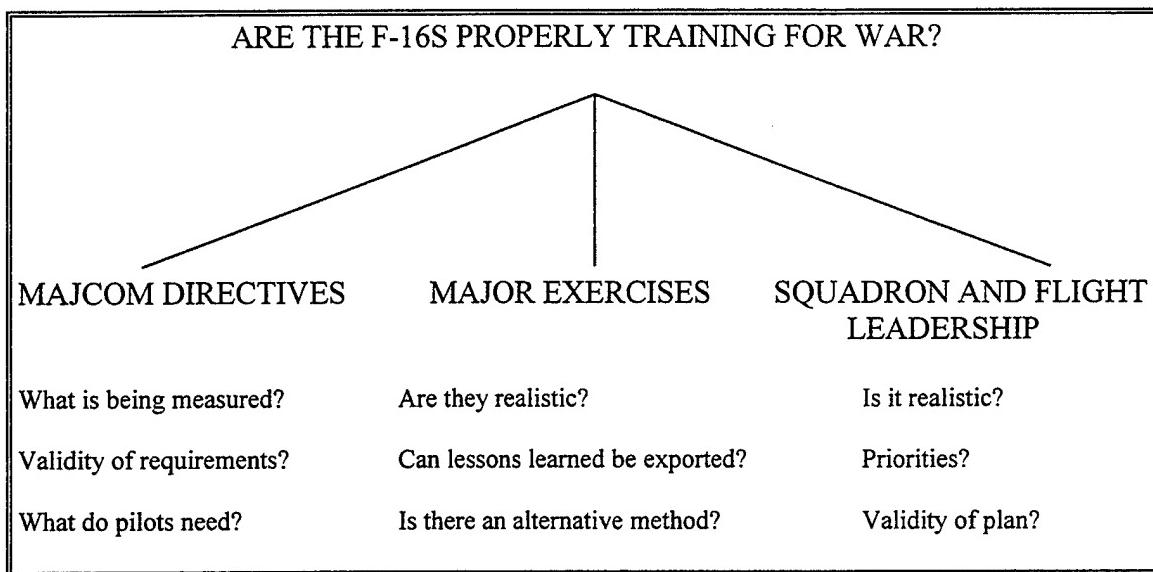


Figure 1. Subordinate Thesis Questions

In review, the training system is composed of MAJCOM directives, major exercises, squadron supervision, and flight leadership. In an attempt to determine the answer to the thesis question, this work scrutinized each part of the training system and evaluated the training value gained during each section. This partitioned examination of the training system undoubtedly generated a host of secondary questions. As each section is covered, the subordinate questions were addressed. The answers to these questions provided a link to the thesis question. In a graphical view, this study addressed the questions and concepts illustrated in Figure 1.

#### Concepts and Definitions

There are three general types of F-16 aircraft in the USAF inventory. The demarcation method is accomplished by using a numeric block designation. The different blocks are Block 30, Block 40 and Block 50. Each block of F-16s possesses unique qualities and these qualities determine specific roles for aircraft.

The Block 30 F-16 is the oldest version flying in the active duty component of the USAF. The USAF has one Block 30 squadron and it is stationed at Cannon Air Force Base, New Mexico. The Block 30 lacks a Global Positioning Satellite (GPS) capability and is incapable of carrying the hardware required to employ Laser Guided Bombs (LGBs) or the High Speed Antiradiation Missile (HARM). In order to improve the night capability of this older block, they are currently undergoing a modification so the pilots can fly with night vision goggles (NVGs).

The Block 40 is the primary air-to-ground F-16 for employing precision munitions. These F-16s have GPS capability and can employ LGBs. In addition, when

equipped with a Navigation (NAV) Pod, this version of the F-16 can engage the Terrain Following Radar (TFR) and fly very low to the ground in both daylight and darkness. The NAV Pod provides the pilot a forward looking infra-red (FLIR) picture in the cockpit gives the pilot the ability to see the terrain during night missions. In addition to the NAV Pod, this version carries the Targeting Pod for LGB deliveries. The Targeting Pod is the hardware needed to fire a laser at a designated target on the ground--the LGB guides upon this laser spot. The USAF currently has six Block 40 squadrons in the United States and three squadrons overseas.

The Block 50 F-16 is the aircraft that does the Suppression of Enemy Air Defense (SEAD) mission. This mission involves destroying or suppressing the enemy's surface-to-air threat capability. The Block 50 has a GPS capability and uses the HARM missile to target the enemy radar systems. This block can carry standard free-fall munitions but is not capable of carrying the Targeting Pod.

Although discussed in detail in the following chapters, an introduction to the types of training programs covered in this work is needed. There were three different training programs used by the Air Force. The first is the Graduated Combat Capabilities (GCC) program. It was first introduced in the late Seventies and was recently phased-out by the Air Force. The follow-on program is the Ready Aircrew Program (RAP). This program replaced the GCC system in 1996. The last program is the Operations Factors (ops factors) and it was an experimental program used in the Block 40 squadrons at Hill Air Force Base. This program was intended to be used instead of the RAP program, but a recent decision was made to phase this program out in the summer of 1998. The goal of

all of these programs was the same--to train a pilot capable of completing wartime tasking in the F-16.

The following list of terms will provide definitions for an understanding of the ideas presented in the thesis:

F-16 (Block 40). An F-16 air frame modified to carry a targeting pod, navigation pod, and Global Positioning Satellite (GPS) receiver. These aircraft use laser-guided bombs as primary air-to-ground weapons.

Laser-Guided Bomb (LGB). A bomb that has the ability to guide on a laser-spot. The front end of the bomb contains a seeker-head which can "see" where the laser is pointing. The bomb has movable canards that give the bomb limited capability to adjust its ballistic flight path and impact at the laser spot. Normally these bombs are 500lbs or 2000lbs and have a high probability of achieving a direct-hit.

Targeting Pod. A laser designator affixed to the side of the F-16. The targeting pod provides the pilot the capability to track and designate targets with a pulsed laser.

Navigation Pod. An Infrared imaging system combined with a terrain following radar (TFR) which allows the pilot to fly at night, low level (<150 ft) at combat airspeeds.

LANTIRN (Low Altitude Navigation Targeting Infrared for Night). The name given to the capability gained by the Navigation and Targeting Pods. This term is generally used to describe the role of low altitude ingress with an LGB delivery in the target area. The Block 40 version is the only F-16 that can fly this mission.

Major Command (MAJCOM). The parent command of the unit which provides direction and support. The Air Force has three MAJCOMS--Pacific Air Forces Command, United States Air Forces Europe, and Air Combat Command.

Training Cycle. A one-year period in which all directed training activities will be accomplished.

Ready Aircrew Program (RAP). A name given to the training program currently tasked to the flying units. It is this program that specifies the sorties and activities that each pilot is responsible for during the training cycle.

Operational Factors (Ops Factors). An alternative program to RAP currently in use at Hill AFB. This program differs from RAP in that it measures and records different activities.

Sortie. An individual mission flown by a single aircraft. The average pilot will fly approximately three sorties per week

Red Flag. An example of a major exercise. It is conducted on the ranges of Nellis Air Force Base, Nevada, over a two-week period and each day is a “new war.” Normally, this exercise consists of friendly air packages (approx. fifty aircraft) which are opposed by air and surface threats.

### Methodology

The specifics of the methodology employed for this study are discussed in detail in chapter 3 of this work. The principal method of thesis question validation was a forced choice selection survey conducted of F-16 pilots at the U.S. Army Command and General Staff College. The results derived from this survey were used to evaluate the thesis questions and the conclusions are stated in chapter 5 of this work.

As previously stated, this work analyzed each component of the training system. During the analysis, subordinate issues and questions arose, and they are addressed in

chapter 5 as well. This work focused exclusively at the F-16 community and did not incorporate information from other USAF weapon systems.

### Constraints and Limitations

A major constraint to my work was the shortage of previous work covering this topic in its entirety. Although a body of material existed covering individual elements of the training process, no single-source document could be located. Reference sources from the Air University Library and other research projects focused on particular aspects of combat preparations, such as night flying, but previous works encompassing the entire field of peacetime training were lacking.

Another factor constraining the research was the small sample size used for the completion of the survey. Fort Leavenworth policy dictates that all surveys involving personnel off-post must obtain U.S. Army Training and Doctrine Command (TRADOC) approval. Due to time constraints, approval was not feasible. Only the F-16 pilots currently stationed at the Fort Leavenworth post were used for the primary survey in support of my thesis. This aspect severely affected the ability to focus on the Block 40 F-16 training practices when conducting the survey. Out of the twelve pilots available, only three had operational Block 40 F-16 time. To compensate for this fact, the survey was modified to measure generic F-16 training pilots and then parallels were used to develop conclusions.

The most difficult challenge facing this thesis is the ability to verify or repudiate the conclusions drawn by the research. The Air Force and its pilots cannot truly validate training policies and practices until experiencing actual combat conditions. The

challenge lies in just how closely the tacticians and trainers can predict the nature of the next conflict and then incorporate these assumptions into daily training. Just as with the other branches of the Armed Forces, the actual state of combat efficiency can only be tested in actual combat. So, the conclusions I detailed in my thesis will remain unproved until they can be validated during combat.

### Significance of the Study

It is important for members of the Armed Forces to continually conduct an introspective search on training practices as they prepare for war. As these forces train, an evaluation of the current system is needed to ensure the force is combat effective across all levels of conflict. If training is inadequate in peacetime, it will manifest itself by loss of life and equipment in wartime. It would be a tragedy to lose American lives because of a dysfunctional training system. It is for this reason that the study is important and relevant as the U.S. approaches the next potential conflict.

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<sup>1</sup>Joint Electronic Library (CD ROM). “Joint Publication 3-03, Doctrine for Joint Interdiction Operations.” (Washington, DC: U.S. Government Printing Office, 1997), V.

## CHAPTER 2

### LITERATURE REVIEW

This chapter reviews the available literature concerning the issue of peacetime F-16 and its relationship to probable combat operations. The majority of the reference work consisted of official Air Force publications and directives. As previously mentioned, these Air Force publications form the bedrock of the training systems executed at the unit level. The training information flow is graphically depicted in figure 2:

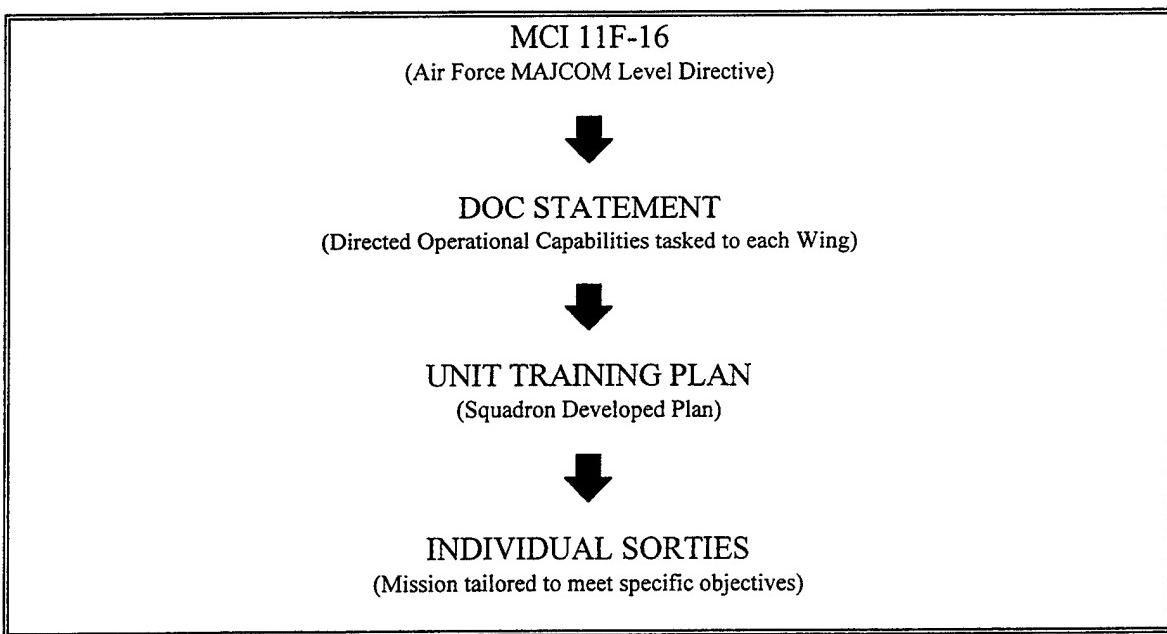


Figure 2. Training Information Flow

#### MCI 11F-16 Volume 1

The governing regulation for F-16 training is the *MULTI-COMMAND INSTRUCTION 11F-16 VOLUME I*. This Operating Instruction (OI) establishes the

minimum Air Force standards for training and qualifying pilots in the F-16. It is from this document that squadron-level units design their respective training programs. This OI covers four broad areas of training: general guidance, qualification training, weapons qualification and specialized training.

The importance of this OI cannot be overstated because it sets in motion the entire training program for Air Force pilots. It details the intent of the instruction and specifies responsibilities of those units and organizations participating in the training process. In addition, this OI propagates the philosophy units should have when training pilots for combat operations. The following paragraphs from *MCI 11F-16 VOL I* are included to define this “training philosophy”:

1.5.1. Units will design training programs to achieve the highest degree of combat readiness consistent with flight safety and resource availability. Training must balance the need for realism against the expected threat, pilot capabilities, and safety. This instruction provides training guidelines and policies for use with operational procedures specified in applicable flying/operations publications.<sup>1</sup>

1.5.2. Design training missions to achieve combat capability in squadron tasked roles, maintain proficiency, and enhance mission accomplishment and safety. Ready Aircrew Program (RAP) training missions should emphasize either basic combat skills, or scenarios that reflect procedures and operations based on employment plans, location, current intelligence, and opposition capabilities. Use of procedures and actions applicable to combat scenarios are desired (e.g., appropriate use of code words, authentication procedures, combat tactics, safe recovery procedures, tactical deception, in-flight reports, threat reactions, Intel briefing/debriefing). Tactical training will include use of inert and live ordnance, threat simulators, countermeasures, and dissimilar aircraft as much as possible.<sup>2</sup>

1.4.4. Ready Aircrew Program (RAP) is the CT (Continuation Training) program designed to focus training on capabilities needed to accomplish a unit's core tasked missions. Following completion of IQT and MQT, a pilot will have received training in all the basic missions of a specific unit unless excepted in chapter 3. The pilot will then be assigned to either a Combat Mission Ready (CMR) position or a Basic Mission Capable (BMC) position.<sup>3</sup>

## Ready Aircrew Program

The program that links the MAJCOM directives to training practices is the Ready Aircrew Program (RAP). RAP is the primary training systems used at the majority of the F-16 bases. As stated in the preceding paragraphs, RAP sorties are designed to develop/maintain a pilot's tactical proficiency. The pilot must fulfill the requirements set forth in the RAP program during each training year. Inherent in this notion is the idea that the training sorties are based upon predicted realistic combat situations. This is an important concept which lies at the heart of this thesis--are the F-16 units properly training for realistic combat operations? The OI states:

Wings/Groups will: Develop programs to ensure training objectives are met and Ensure Ready Aircrew Program (RAP) missions are oriented to developing basic combat skills or practicing tactical employment simulating conditions anticipated in the unit mission.<sup>4</sup>

In addition to setting the environment for training, the RAP program also dictates the amount of sorties a pilot must fly during each training cycle. These totals are separated between Combat Mission Ready (CMR) and Basic Mission Capable (BMC) pilots. The following definitions should clarify the differences between the two types of pilots:

1. Combat Mission Ready (CMR): The minimum training required for pilots to be qualified and proficient in all of the primary missions tasked to their assigned unit and weapons system. CMR pilots maintain proficiency and qualification in all core missions of the flying unit to which they are assigned or attached. CMR pilots maintain currencies which affect CMR status, accomplish all core designated flight training (sorties and events), and all mission ground training.<sup>5</sup>
2. Basic Mission Capable (BMC): The minimum training required for pilots to be familiarized in all, and may be qualified and proficient in some, of the primary missions tasked to their assigned unit and weapons system. BMC designations are assigned to pilots who have a primary job performing wing supervision or

staff functions that directly support the flying operation, are FTU instructors, or are operational test pilots.<sup>6</sup>

Each pilot, depending on his classification, must fly the minimum amount of sorties specified in the document or he will lose his classification. For the purposes of this thesis, the difference between a BMC pilot and a CMR pilot is not important--they are both qualified to participate in combat operations. Figure 3, extracted from 11F-16 VOL I, illustrates the sortie requirements which each pilot must log every training year.

Annual F-16 RAP Sortie Requirements (Inexperienced/Experienced)			
MAJCOM	Cycle	BMC	CMR
ACC AETC USAFE PACAF	RAP Total	72/60	116/96
	3-Month Lookback	18/15	29/24
	1-Month Lookback	6/5	10/8
ANG AFRC	RAP Total	72/60	90/76
	3-Month Lookback	18/15	22/18
	1-Month Lookback	6/5	8/6

Figure 3. Annual Training Requirements.

Note: The concept of inexperienced/experienced sortie differential is beyond the scope of this thesis

In addition to a total number of sorties, MCI 11F-16 directs a minimum number of sortie type each pilot must fly during the training cycle. From a training point of

view, a pilot must log a sufficient type and total number of sorties each training cycle in order to maintain his combat status. Figure 4 depicts a portion of MCI 11F-16 designed specifically for Block 40 F-16 units.

TYPE MISSIONS/SORTIES		
	BMC	CMR
BSA (DAY)	6/4	10/8
SAT (DAY)	(/)	28/22
SAT (NIGHT)	12/10	14/12
CAS	(/)	6/4
SEAD-C	(/)	8/6
DCA (DAY)	(/)	10/8
DCA (NIGHT)	(/)	4/4
ACM	6/4	6/4
BFM	6/4	8/6
RED AIR SORTIE	(/)	12/12
COMMANDER OPTION	42/38	10/10

Figure 4. RAP Annual Sortie Type Requirements for Block 40 F-16 Squadron

In review, MCI 11F-16 VOL I provides the training baseline to the operational units. Major portions of this baseline include the training philosophy, total sortie numbers, and specific sorties types. The units use these directives, in conjunction with the designed operational capability (DOC) statement, to shape the unit training plan.

## Operations Factors

In contrast to the RAP program, Hill Air Force Base is conducting an experimental training design known as operations factors (Ops Factors). Although under the purview of the MAJCOM umbrella, the pilots at this base do not have to meet the requirements outlined in the RAP program.

The Ops Factors program is a program based upon results as opposed to a number of specified requirements. For example, under the RAP program, a BMC pilot is required to fly a specific number of sorties (see figure 3). In the Ops Factors program, there are no numerical requirements for most types of sorties. Rather, the squadron and wing leadership identify what type of training missions are needed based upon the outcome of the previously flown sorties. For example, a squadron evaluates a cross section of sorties during a week of surface attack tactics (SAT) training. The evaluation of this flying reveals that only 50 percent of the sorties flown were effective. Effective being defined as: surviving the ingress, delivering bombs on target, and surviving the egress. The squadron commander may not be satisfied with these results and hence, determine the squadron may need to fly more SAT sorties. Since the commander is not encumbered by a specific amount of sorties type, he has the option to fly as many SAT sorties as he wants without fear of falling behind in another category. The important idea to gain is that there are two different MAJCOM programs employed to reach the same end result of sound combat effectiveness.

### RAND Project

A second source of literature was consulted during the course of the research. Project AIR FORCE is a division of RAND and it provides the USAF with analyses of policies affecting employment and combat readiness. The specific report consulted during the construction of this thesis was entitled *Relating Mission and Training Requirements to Demands for Air Space and Ranges*. Although the focus of this report was to determine the needs of airspace and ranges based upon requirements by the Unified Commanders in Chief (CINCs) and the National Command Authority (NCA), there were several aspects of the report which related to this thesis.

The RAND study included an analysis on the designated operational capability (DOC) statement process. As shown in figure 2, one of the major inputs into the training information flow is the DOC statement. The DOC statement for each flying wing is used to derive related mission tasking and profiles. The details contained in the DOC statement are classified but each fighter wing uses this source document to tailor training in order to fulfill expected combat taskings.

The generation of a DOC statement occurs at the MAJCOM level. The training personnel at MAJCOM headquarters solicit inputs from the CINCs on an annual basis. These inputs, made in the form of a requirements and capabilities statement, are designed to reflect the types and roles of combat tasking expected from the CINC within his area of responsibility. In theory, this is a formalized process and the upshot is the formulation of the annual DOC statement

Some generic examples contained in a DOC statement might include taskings such as LANTIRN requirements, Killer Scout qualifications, and Maverick missile qualifications.

In turn, each wing must tailor their training programs to adhere to these specified DOC requirements. Due to the classifications of the actual DOC statement, an example of this document will not be included in this study.

#### Other Documentation

Other written procedures used to determine training objectives at the higher headquarters level are sometimes ambiguous at best. The training requirements are derived from a series of inputs ranging from informal office meetings to formalized review boards. Although no written procedures could be found to detail an all-encompassing system, telephonic interviews with key personnel were used to determine the critical steps in the formulation of F-16 training. The following sections discuss how the process fits together as a complete system.

#### MAJCOM Requirements

No written documentation exist on how the MAJCOM requirements evolved to their current levels. The office which hold primary responsibility for determining the RAP taskings is ACC/DOT. This is the training section at the MAJCOM headquarters at Langley AFB, Virginia. During telephonic interviews with training personnel, the statement was made that the process of determining RAP related events were based upon historical precedence and “expert opinion”.

## Realistic Training Review Board

The Realistic Training Review Board (RTRB) is an official avenue used to make modifications to the training process. The RTRB meets twice a year and inputs designed to enhance training procedures are presented and discussed in an open forum. The RTRB is chaired by a two-star general and representatives from each wing are represented.

During the RTRB, changes to the training process are submitted, discussed and if further action is warranted, the change is “assigned” to a particular individual or office for further action. If the item being evaluated is deemed appropriate for inclusion into the training process, a change is made to the MAJCOM training directives.

## Unit Training Plans

As mentioned, the flying squadrons will develop a plan to train pilots to a tactical proficient level. This training plan is based upon RAP requirements, DOC requirements and unit objectives. Normally, these plans are presented in a *Six Month Plan*. This plan is fluid and changes constantly due to weather attrition, maintenance factors and unforeseen taskings. In addition to being fluid, the format of the training plan varies widely from unit to unit. For reference, Appendix A contains a portion of a sample six month plan.

The development of the training plan is normally developed by the operations officer and other squadron leadership. At the 4th Fighter Squadron, Hill AFB, the operations officer held a monthly meeting which included the flight commanders, training officer, weapons officer and maintenance representatives. This discussions of

the meeting covered the desired phase of training, unit objectives during the phase, and maintenance considerations to support the plan.

After approval of the six month plan, the unit's training philosophy and objectives are disseminated to the squadron. Generally, this is accomplished through the use of squadron meetings, supervisor meetings and group discussions. These training objectives are then incorporated into daily flying sorties.

#### Individual Training Sorties

At the end of the training line is the specific sortie flown by members of the fighter squadron. The flight-lead is responsible for specifying the training objectives for each mission. The flight-lead tailors the mission to meet individual requirements influenced by RAP, DOC and unit inputs. There is no specific written documentation which regulates exactly how a flight lead determines every mission profile. Some missions may have a "normal" profile--a standardized flow of training events. Other mission profiles may be dynamic and are based upon several variables.

Within a squadron, pilots will progress through a normal flow of responsibility. As a pilot trains for additional responsibility, he is placed in a formal training program. The specific task required within each program are normally standardized at wing level and training profiles are similar. An example of a flight-lead training program is included as Appendix B to this study.

As pilots become more experienced and show the aptitude to handle more demanding mission capabilities, they are trained to a higher level. At each level, the pilot

is given more responsibility and more latitude to affect the course of the training sortie.

An illustration of the progression detailed in this paragraph is provided in following depiction.

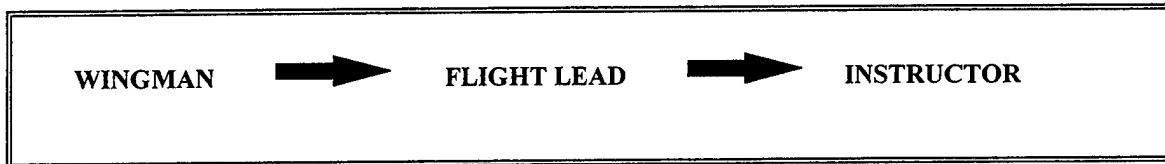


Figure 5. Pilot Progression.

A general description of each classification is as follows:

Wingman: Inexperienced in the aircraft (Normally < 500 hours in aircraft)  
Responsible for the safety of his own aircraft  
Normally not required to make tactical decisions for the formation

Flight Lead: Experienced in the aircraft (> 500 hours in aircraft)  
Responsible for the safety of the aircraft in his element or flight  
Makes tactical decisions for flight

Instructor: Highly experienced in the aircraft (Normally >700 hours in aircraft)  
Trains and evaluates flight-leads and wingmen  
Leads the most complicated missions

If a pilot is not in a training program, he flies continuation training (CT) missions.

The purpose of CT missions is to maintain currency and proficiency in differing phases of flight. It is during the conduct of CT missions that profiles vary widely. The flight lead of the mission determines the profile of the mission. For the purposes of this study, documentation on specific CT profiles could not be located.

### Operational Factors Program

The Ops Factors program is discussed throughout this thesis. In order to understand this program, the following sections will describe the evolution of this system and detail how it applies to training.

A weapons officer assigned to a flying squadron at Hill Air Force Base wanted to determine how effective the squadron was at performing its combat mission. At the time, there was no system in place to reveal a measure of effectiveness. The weapons officer conducted an informal survey of the squadron in which he asked each pilot how successful they would be if they went to combat. The survey found that almost 90 percent of the pilots thought they would be successful fulfilling a combat tasking.

The weapons officer thought this figure was too high, so he decided to conduct a week-long exercise in which the results of the missions were to be tabulated and presented at the end of the week. The first order of business was to define the word success as it applied to a mission. After inputs from several sources, the term “success” was defined as: the ability to successfully survive the ingress, deliver weapons on the intended target and successfully survive the egress. In combat, this would equate to both the pilot and aircraft returning home and the weapons hitting the intended target.

Along with the evaluation, a set of metrics was initiated. If a pilot was rated as not “successful,” the reason was recorded for after-action analysis. Although the process of recording the aerial activity took more time than routine mission, each reason for failure was diligently recorded.

Each mission flown had a standardize threat array to contend with--this would ensure each mission faced the same time of threat presentation in order to increase the fidelity of the results. The target types were similar, as were the number of airborne adversaries.

After one week of flying, the results were tabulated and the squadron was briefed on the success rate. The weapons officer found a seventy-nine percent success rate from all of the sorties flown--significantly less than predicted. The upshot of the entire process was the ability to identify weak areas in the missions. He found that almost fifty percent of the failures occurred on the ingress to the target area and another thirty percent of the failures occurred in the target area. Armed with this knowledge, he was able to rearrange the training plan to address the weak areas.<sup>7</sup>

The wing leadership got involved with the process at this point. A panel of pilots convened and they were tasked to design a new training plan to enable squadrons to discover their weak areas and modify their training accordingly. In order to accomplish this, the panel examined the current GCC annual requirements. Upon this examination, the pilots found that the GCC program did not measure success, rather it measured activity. So, under the GCC system, a pilot was tasked to fly a number of sorties and once these sorties were flown, the pilot was deemed combat ready, regardless of how he performed on the mission. To illustrate the point, a pilot had to fly twenty SAT sorties under the GCC program every year. The pilot could have flown these sorties, missed the target every time, and still have been labeled as "qualified."

The Ops Factors program developed to correct this apparent disparity in training.

The Ops Factors program was developed to be results oriented instead of quantity oriented. Under this program, a pilot had to fly a number of successful missions to qualify as a combat ready pilot. In addition, the squadron had the latitude to adjust the types of sorties flown based on previous results.

The Ops Factors program was initiated at Hill Air Force Base in 1996 in place of the GCC program. The three F-16 squadrons at this base were the only squadrons allowed to participate in the program. It was labeled as experimental and the training personnel developed databases of information for the rest of the Air Force to use. The program was well received within the squadrons.

### Summary

The primary source of information for this thesis was derived from Air Force publications and directives. A RAND product was used to amply certain specifics of the training process. The training requirements “trickles-down” from the MAJCOM to the individual flying squadrons in the form of OI’s and specified task. Each squadron then bases its daily flying activity fulfilling these requirements. The premise of this training is based upon “missions are oriented to developing basic combat skills or practicing tactical employment simulating conditions anticipated in their unit.”<sup>8</sup>

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<sup>1</sup> U.S. Air Force, Multi-Command Instruction 11F-16, vol 1 (Department of the Air Force, 1997), 1.5.1

<sup>2</sup> Ibid., 1.5.3

<sup>3</sup> Ibid., 1.4.4

<sup>4</sup> Ibid., 1.2.5.3

<sup>5</sup> Ibid., 1.4.4

<sup>6</sup> Ibid., 1.4.4

<sup>7</sup> Personal experience by the author and his involvement with the Ops Factors initiation. This study was done by the 421st Fighter Squadron in May 1996.

<sup>8</sup> U.S. Air Force, Multi-Command Instruction, 11F-16, 1.2.5.3

## CHAPTER 3

### RESEARCH DESIGN

This chapter explains the research methodology. As previously stated, the aim of this study was to evaluate whether Air Force Block 40 F-16 units were properly training for combat operations. In order to answer this question, the four areas of peacetime training were evaluated. Those areas being: MAJCOM directives, major exercises, squadron leadership, and daily flight leadership.

In order to evaluate these areas, this study administered a survey to F-16 pilots currently stationed at Fort Leavenworth. Although these pilots are not current in the F-16 at the time of the survey, they used be current and qualified at one point in their career. The survey was used to measure how the pilots perceive the influence and effectiveness of the training system in which they flew. The specific questions contained on the survey and the results are included in chapters 4 and 5 of this thesis.

In addition to a survey of F-16 pilots at Fort Leavenworth, a secondary survey was conducted of pilots currently stationed at Hill Air Force Base. Pilots at Hill Air Force Base are specifically trained for the LANTIRN mission and employ the Block 40 aircraft. The survey was administered via email and telephone conversations with pilots in a fighter squadron.

A telephonic interview with a previously qualified squadron commander is included in chapter 4. The aim of the interview was to gain a leadership prospective on

the training process within a fighter squadron. A squadron commander is ultimately responsible for the training and proficiency of the pilot within his squadron.

In addition to the surveys and interviews, this thesis includes a comparative analysis between RAP and the Ops Factors program. As specified in the second chapter of this paper, two types of MAJCOM systems were in-place at Block 40 F-16 wings. Just as this thesis was due for completion, the official Air Force policy towards Ops Factors changed. The units involved in the Ops Factors programs were directed to drop the program and initiate a RAP based training system. The headquarters personnel decided that it was more efficient and made training policy more manageable if all of the F-16 squadrons operated under the same training system. Both Ops Factors and RAP were designed to prepare pilots for combat but their annual requirements were different. Even though the Ops Factors program was dropped as this paper was nearing completion, the analysis of the program was still included in chapter 5 to underpin conclusions made in this study.

#### Primary Survey

As indicated, a primary survey was designed for the purpose of gathering information on this subject and evaluating the thesis question. The survey was designed at Fort Leavenworth under the purview of the Master of Military Arts and Science (MMAS) staff. The function of the survey was to measure and collect information concerning F-16 training. The survey was completed by pilots who, at some point in their career, were qualified in the F-16. The current CGSC had twelve pilots available for

the survey. Two of these pilots were excluded because they were involved with the writing of this thesis. The other ten pilots were selected as survey recipients.

#### Research Limitations

The primary survey used to draw conclusion within this thesis had to stand on its own. That is, no collaborating study was used as a comparative tool for the results. As previously mention, very little work exists on this specific topic. The lack of a well-established information base made the survey the primary source used in this evaluation. A limiting concept in this survey was the fact that this was the first survey ever designed by the author. Therefore, although scientific principals were employed, inherent problems exist in this survey due to a lack of expertise.

In addition to the stated lack of expertise in survey methodology, several phone conversations were conducted with key personnel involved in the training process. Most of these phone conversations occurred between the author and training personnel at Langley Air Force Base, Virginia. These individuals were currently acting in an official job capacity within the MAJCOM training offices. The statements of these individuals concerning the training process were taken at face-value as being true. Therefore, statements made by these individuals were deemed as expert opinions and used accordingly.

Supplementing the survey were additional phone conversations with F-16 personnel not assigned to the CGSC. Due to the small number of F-16 pilots currently enrolled in the CGSC program, other pilots were used to supplement this research. Data

gained from these phone conversations is included in the following chapters of this study.

Once again, the concept of expert opinion is applied to this information.

#### Secondary Survey

The secondary survey was needed to gain information from a Block 40 F-16 squadron. As previously described, a Block 40 F-16 is an airframe equipped with a Navigation Pod and a Targeting Pod and these aircraft perform the LANTIRN mission. Under the strict rules of the MMAS program, surveys conducted of personnel outside of the CGSC community needed approval of TRADOC. The approval process for such a request was estimated to be a year long ordeal. This lengthy amount of time made any such request pointless and therefore, none was attempted.

A secondary survey was accomplished and conducted outside of the MMAS process. Therefore, this survey is deemed as an unofficial part of the research. Although labeled as unofficial, the strict rules of scientific methodology were applied to this secondary survey.

## CHAPTER 4

### PRIMARY SURVEY

A written survey was the primary means of determining an answer to the central thesis question. The survey population was the F-16 pilots currently stationed at the U.S. Army Command and Staff College (CGSC) at Fort Leavenworth, Kansas. A total number of twelve pilots qualified at CGSC. Surveys were provided to ten of those twelve and all ten were completed and returned.

The survey was designed to answer the central thesis question by measuring the four subareas of the current peacetime training program. To review, those four areas were: MAJCOM training directives, squadron leadership, major peacetime exercises, and flight leadership.

The survey was primarily a forced choice type of survey. The pilots responding were asked a question regarding a specific training area and then a response choice was provided. The response was a 5 point Likert sliding scale ranging from *Strongly Agree* to *Strongly Disagree*. The pilots indicated their choice by selecting the appropriate answer in the space provided.

Each questionnaire was provided to the pilot and he was informed to take as much time as he saw fit to complete the questions. The process was not supervised, and the completed surveys were returned at the leisure of the pilot being questioned. The entire process, from handing out the initial survey until collection of the last survey took, eleven days.

Each question and its associated results are highlighted in the following pages of this work. Only the objective results are discussed in this chapter. An interpretation of the results will follow in the next chapter of this work. The following sections detail the questions on the survey and the corresponding answers:

### Demographics

The first section of the survey was a demographics segment. This section determined the experience level of the pilot completing the questionnaire. As a pilot increases his experience level, he is generally more adept at evaluating the validity of a training system. The first three questions provided a means to establish a pilot's experience level. In addition, a measurement of previous combat experience was taken. The questions and their results are included below.

1. What is your highest level of qualification in the F-16? (Check only one)

- Wingman
- Flight-lead
- Instructor Pilot
- Weapons School Graduate

Results for question 1 as follows:

1. 0/10 (0%) Wingman
2. 0/10 (0%) Flight-lead
3. 5/10 (50%) Instructor Pilot
4. 5/10 (50%) Weapons School Graduate

The results show that all of the respondents were highly experienced in the F-16. Fifty percent qualified as *Instructor Pilots*, and 50 percent qualified as Weapons School Graduates. Although not specifically addressed in the survey, all of the respondents held

the military rank of major and had occupied leadership positions within a fighter squadron.

2. Which operations(s) have you logged combat time?

- DESERT STORM
- SOUTHERN WATCH (Enforcement of the Southern No-fly zone over Iraq)
- PROVIDE COMFORT (Enforcement of the Northern No-fly zone over Iraq)
- DELIBERATE FORCE (Bombing Operations against the Serbs in Bosnia)
- I have not flown in combat

The results for question 2 were calculated as follows. (Note: Some pilots flew in more than one operation.)

1. 5/10 (50%) DESERT STORM
2. 2/10 (20%) SOUTHERN WATCH
3. 2/10 (20%) PROVIDE COMFORT
4. 1/10 (10%) DELIBERATE FORCE
5. 1/10 (10%) Had not flown in combat

The survey results show that nine of the ten pilots had flown in combat environments. Of those pilots, 50 percent flew in DESERT STORM. Only one pilot did not fly in any combat zone. This indicates nine of the ten pilots flew in combat conditions in the period from 1991 to 1996.

3. Rate the following statement: *I felt my training prepared me for combat operations*

Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree  N/A

Comments: \_\_\_\_\_

Results of question 3:

1. 3/10 (30%) Strongly Agree
2. 4/10 (40%) Agree
3. 1/10 (10%) Neutral
4. 1/10 (10%) Disagree
5. 0/10 (0%) Strongly Disagree
6. 1/10 (10%) N/A

The majority of the pilots responded with either a *Strongly Agree* or *Agree*. One pilot chose *Neutral* and one pilot picked the *Disagree* choice.

Comments were intentionally solicited on this question to identify weak areas in the training system reflected in actual combat. The comments from question 3 are included as follows:

1. "Very little high altitude training was accomplished before Desert Storm."
2. "Never flew medium altitude missions at night before Desert Storm!"
3. "You can't really evaluate your training until you are there!"
4. "I felt my combat sorties were less demanding than my previous training sorties. Training sorties were filled with many different and sometimes competing training objectives."
5. "Desert Storm was the first time I had seen CBU-87 and I had no training with a mass package of airplanes."

#### MAJCOM Training Program

The next section of the survey focused on the type of MAJCOM training program. The intent of this segment of the survey measured how the pilots felt about the specific program under which they accomplished their training. This section contained two questions.

4. My training requirements were provided under which MAJCOM program?

- GCC Level Annual Requirements  
 RAP (Ready Aircrew Program)  
 Operational Factors

The results for question 4: (Some pilots flew under more than one system)

1. 10/10 (100%) GCC Level Annual Requirements
2. 0/10 (0%) RAP (Ready Aircrew Program)
3. /10 (20%) Operational Factors

All of the pilots flew under the outdated GCC Level Annual Requirements

program and none of the pilots flew under the RAP program. Since the RAP program did not begin until the summer of 1997, all of those being surveyed had reported for school at CGSC. Two of the pilots indicated that they flew under the OpsFactors program.

5. The requirements dictated by MAJCOM (Annual Requirements) are sufficient for combat preparations.

Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree

Results for question 5 are:

1. 0/10 (0%) Strongly Agree
2. 9/10 (90%) Agree
3. 1/10 (10%) Neutral
4. 0/10 (0%) Disagree
5. 0/10 (0%) Strongly Disagree

Nine of the pilots agreed to the statement with one pilot feeling neutral. For the purpose of this study, the requirements tasked under the GCC program are equated to those tasked under RAP. When the Air Force converted the GCC program to RAP, very few of the requirements changed.

### Squadron Leadership

The third section of the survey measured the involvement of squadron leadership and determined which part of squadron leadership had the most impact on the unit

squadron training program. It is this squadron leadership who architects the bridge between MAJCOM requirements and the squadron's policies on training.

This section had two questions and they correlate to question six and seven on the survey. The questions in this part were as follows:

6. Squadron leadership (CC and Ops Officer) actively participated in the training program.

Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree

The results for question 6 were as follows:

1. 2/10 (10%) Strongly Agree
2. 5/10 (50%) Agree
3. 2/10 (20%) Neutral
4. 1/10 (10%) Disagree
5. 0/10 (0%) Strongly Disagree

The results show that the majority of the pilots (7/10) feel the squadron leadership actively participated in the training program by selecting either the *Strongly Agree* or the *Agree* category. Two pilots picked *Neutral* while the last pilot indicated *Disagreement* with the statement.

7. Who has/had the most influence on determining the training policy and objectives during day-to-day operations?

Squadron CC  
 Ops Officer  
 Weapons Officer  
 Flight Commander  
 Other (please identify)

The results for question 7:

1. 0/10 (0%) Squadron CC
2. 4/10 (40%) Operations Officer
3. 3/10 (30%) Weapons Officer
4. 2/10 (20%) Flight Commander

5. 1/10 (10%) Other

The results indicated four pilots felt the Operations Officer had the most influence on the training process, three indicated the Weapons Officer, two chose the Flight Commander and one felt that another source provided the influence. The pilot who selected the Other category, made a written response and wrote in a choice of flight-lead for an answer.

#### Major Exercises

The fourth part of the survey dealt with major exercises. The survey measured which types of exercises the pilots had experiences in and then measured their effectiveness. This section contained five questions and these correlated to questions eight through twelve on the survey.

8. Check the major exercises you have participated in. (Check all that apply)

- Red Flag
- Green Flag
- Cope Thunder
- Long Shot
- Other
- None of the above

Results from 8: (Some pilots flew in more than one exercise)

1. 10/10 (100%) Red Flag
2. 8/10 (80%) Green Flag
3. 6/10 (60%) Cope Thunder
4. 4/10 (40%) Long Shot
5. 3/10 (30%) Other
6. 0/10 (0%) None of the above

All ten of the pilots participated in the *Red Flag* exercise on one point in their career. Eight of the pilots flew in a Green Flag exercise, six flew in a Cope Thunder and four flew in a Long Shot exercise. This indicates a high level of major exercise experience.

9. Rate the following statements: I felt the scenarios at major exercises accurately reflected combat operations.

Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree  N/A

Results of question 9:

1. 0/10 (0%) Strongly Agree
2. 6/10 (60%) Agree
3. 1/10 (10) Neutral

Results of question 9—continued:

1. 2/10 (20 %) Disagree
2. 1/10 (10%) N/A

The results show six pilots *Agreed* with the statement, one was *Neutral*, two *Disagreed* and one marked the *Not Applicable* selection. No explanation was provided for this last choice. The intent of the “N/A” was to provide a selection for those who had not participated in any type of exercise.

10. Participating in a major exercise increased my combat effectiveness.

Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree  N/A

Results from this question:

1. 7/10 (70%) Strongly Agree
2. 2/10 (20%) Agree
3. 0/10 (0%) Neutral
4. 0/10 (0%) Disagree
5. 0/10 (0%) Strongly Disagree
6. 1/10 (10%) N/A

The majority of the pilots indicated a varying level of agreement with the statement. Seven selected *Strongly Agree* and two chose *Agree..* One pilot chose the *Not Applicable* selection—once again, no written explanation was provided for this entry.

11. At these exercises, did you feel the threat presentation adequately reflected your next combat situation?

- Yes  
 No  
 I did not participate in any exercise

If no, why not? \_\_\_\_\_

Results from question 11:

1. 3/10 (30%) Yes
2. 7/10 (70%) No

The majority of the pilots (7/10) indicated a negative response to the question.

Three of the pilots agreed with statement. The “why not” area of this question provided the pilots with the opportunity to provide reasons as to why they felt the threat presentations at major exercises did not reflect the expected combat presentation. These data will be used in the following chapter to draw conclusion about the validity and utility of the exercises. The following comments were provided by the pilots completing the survey:

The level of the air-to-air threat was greater at these exercises than I felt we would face in future combat.

The exercises were not intense enough - fog/friction!

Red Flag threat much more intense than SOUTHERN WATCH, but it should be that way....

Red Flag—the simulated air-to-air threat doesn’t reflect an actual adversary and the ground threat is difficult to make challenging due to mobility restrictions.

Unrealistic—too high of a threat.

12. If you could change one thing at these exercises, what would it be?

Threat Presentation     Force Composition     Kill Removal     Target Types

Comments: \_\_\_\_\_

Results for question 12:

1. 5/10 (50%) Threat Presentation
2. 2/10 (20%) Force Composition
3. 2/10 (20%) Kill Removal
4. 1/10 (10%) Target Types

Half of the respondents indicated a change to the *Threat Presentation*, two selected the *Force Composition*, two chose *Kill Removal* and one pilot picked *Target Types*. Once again, comments solicited from this question were intended to draw out responses to be used in data interpretation. The following comments were provided by the pilots answering this question

Inaccurate Kill Removal between air-to-air kills and surface-to-air kills has the greatest impact on training.

The force composition doesn't reflect true combat operations. I only flew three large packages during Desert Storm out of 50 missions.

The enemy air presentations is too high—unrealistic.

Exercises tend to mix similar aircraft types on both sides of the war—causes confusion.

#### Flight Leadership

The next portion of the survey dealt with flight leadership. The concept of flight leadership involves the actual type and quality of training accomplished on the F-16 sortie. The flight-lead is the pilot who determines the mission conduct and sets the objectives for the sortie. After the sortie, it is the flight-lead who organizes the debrief and conducts the critical review of the entire mission.

This section of the survey contained two questions. Question 13 was a scaled question and question 14 was a written response. The questions and their associated responses follow:

13. How would you rate your flight-leads in regards to organizing the mission to obtain realistic combat training?

Outstanding     Good     Needs slight improvement     Poor

Responses to question 13:

1. 1/10 (10%) Outstanding
2. 6/10 (60%) Good
3. 3/10 (30%) Needs slight improvement
4. 0/10 (0%) Poor

When rating the flight-leads performance, one pilot selected *Outstanding*, six pilots picked *Good*, and three indicated *Needs slight improvement*.

14. What do you consider the most important factor(s) the flight lead should consider when planning the training objectives for a sortie?

As previously mentioned, this was an open-ended question. The responses fell into two general categories: fulfilling training requirements and proficiency items. Flight leadership was a difficult item to scientifically survey because so much of this area is based upon the skills and experiences of the individual. The particulars of this question are addressed in the next chapter.

### General Training

The last portion of the survey solicited general ideas about the training of F-16 pilots. As in question 14, the answers to the last two questions were used to support conclusions drawn in the last chapter. The questions and the associated responses follow:

15. If you went to war tomorrow (assuming you were current), what do you think would be your main strength/weakness would be while flying combat missions?

Written responses to question 15:

#### Strengths:

Awareness of primary objective—Bombs on target  
Weapons delivery!  
Systems employment knowledge and situational awareness.  
I am highly experienced and can fall back on this in times of need.  
My strength would be the fact that I have experienced combat before.  
I have over 2000 hours in the F-16 and can use this experience in combat.  
Been there before....  
My experience and leadership are my strongest suits.  
My experience in getting the job done.  
My ability to make decisions in the air.

#### Weaknesses:

My level of air-to-air situational awareness.  
The ability to process air-to-air battle information.  
My ability to stay proficient at air-to-ground weapons delivery.  
Combat proficiency is tough to maintain with the additional duties.  
The ability to anticipate the unexpected.  
I think my major weakness will be doing something in combat that I didn't practice before the conflict—like high altitude bomb deliveries.  
The ability to successfully defend against a real surface-to-air missile threat.

16. Any other comments concerning the training programs for the F-16?

The written responses are included:

We need more threat simulators, simulators that reflect true conditions and results in a combat environment.

Not enough emphasis on tactical scenarios and the range airspace to conduct these types of missions.

The fighter community trains based upon historical patterns rather than predicting the next conflict.

Weapon School IP's are not used properly within the squadron—need to be more involved in the day to day training.

F-16 pilots spend too much time practicing all types of missions instead of focusing on a basic few.

### Secondary Survey

A secondary survey was accomplished in order to support this thesis. Although this survey was not officially endorsed by the school standards, the same methodology and scientific methods used in the primary survey were applied to this secondary survey.

This secondary survey used e-mail and telephonic capabilities as a means to contact the pilots.

Since the survey pool at CGSC contained a very limited amount of Block 40 F-16 pilots, five pilots at Hill Air Force Base were contacted for this secondary survey. The particular pilots chosen were randomly picked from a list of squadron personnel. A list of Block 40 specific questions was sent via email or a telephonic interview was conducted. The focus of this survey was the LANTIRN mission and the associated training that this type of mission entails. The questions and the results are detailed in the following paragraphs.

## Demographics

1. What is your highest level of qualification in the F-16? (Check only one)

- Wingman
- Flight-lead
- Instructor Pilot
- Weapons School Graduate

Results for question 1 as follows:

1. 1/5 (20%) Wingman
2. 2/5 (40%) Flight-lead
3. 1/5 (20%) Instructor Pilot
4. 1/5 (20%) Weapons School Graduate

Unlike in the CGSC survey, this survey contained a pilot who was inexperienced.

In regards to this question, one pilot selected *Wingman*, two pilots were *Flight-leads*, one pilot selected *Instructor Pilot* and one pilot was a *Weapons School Graduate*. Another distinguishing factor between the CGSC survey and the secondary survey was the fact the pilots in the secondary survey were captains.

2. Are you LANTRIN qualified (TFR)?

- Yes
- No

The results of question 2:

1. 3/5 (60%) Yes
2. 2/5 (40%) No

Three of the five pilots were qualified in the LANTIRN mission and two were not qualified. Note: This question defined LANTIRN qualification as the ability able to employ the TFR during night training sorties. Those pilots not qualified in LANTIRN

can still fly at night and employ the Targeting Pod as long as they remain above 5000 feet above the terrain.

#### MAJCOM Training Requirements

3. Did you fly under the Ops Factors program?

- Yes  
 No

The results of question 3 were:

1. 4/5 (80%) Yes
2. 1/5 (20%) No

The majority of the pilots (4/5) flew under the Ops Factors program. One pilot did not. As specified in the previous chapter, Hill AFB was flying under the Ops Factor training system before a recent switch to the RAP program.

4. If you flew under both the Ops Factors program and the RAP program, which one did you prefer?

- Ops Factors  
 RAP

The results of question 4:

1. 4/4 (100%) Ops Factors
2. 0/4 (0%) RAP

All four of the pilots who indicated a *Yes* response to question 3, preferred the Ops Factors system. As indicated in question 4 of the CGSC survey, no one at Ft. Leavenworth had experience under the RAP system.

5. The requirements dictated by MAJCOM (Annual Requirements) are sufficient for combat preparations.

- Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree

Results as question 5:

1. 0/5 (0%) Strongly Agree
2. 1/5 (20%) Agree
3. 2/5 (40%) Neutral
4. 1/5 (20%) Disagree
5. 1/5 (20%) Strongly Disagree

Only one pilot *Agreed* to this statement. Two pilots felt *Neutral*, one pilot *Disagreed*, and one pilot *Strongly Disagreed*. This question, when it referred to MAJCOM requirements, referred to those requirements specified under the RAP program. The pilot who *Strongly Disagreed*, provided a verbal explanation with his answer. He indicated that RAP required too many night sorties in the annual program and the inflexibility to update LANTIRN currency.

6. If qualified in the LANTIRM mission, do routine training sorties accurately reflect anticipated combat operations.

- Yes  
 No

The results of question 6:

1. 1/3 (33%) Yes
2. 2/3 (66%) No

One third of those qualified for the LANTIRN mission thought their routine training reflected combat operations. The other two-thirds (2/3) indicated a *No* response to this question. Of note, this sample size reflects three pilots responding as compared with seven who were LANTIRN qualified within the squadron.

### Major Exercises

7. Check the major exercises you have participated in. (Check all that apply)

- Red Flag
- Green Flag
- Cope Thunder
- None of the above

Results from 7: (Some pilots flew in more than one exercise)

1. 4/5 (80%) Red Flag
2. 2/5 (40%) Green Flag
3. 0/0 (0%) Cope Thunder
4. 1/5 (10%) None of the above

Four of the five pilots participated in the *Red Flag* exercise during their career.

Two of the pilots flew in a *Green Flag* exercise and one pilot lacks any major exercise experience.

8. Rate the following statements: *I felt the scenarios at major exercises accurately reflected combat operations and the lessons learned are exportable.*

Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree  N/A

Results of question 8:

1. 0/5 (0%) Strongly Agree
2. 1/5 (20%) Agree
3. 1/5 (20%) Neutral
4. 2/5 (40 %) Disagree
5. 1/5 (20%) N/A

One pilot selected the *Agree* category to this statement, one pilot was *Neutral*, two pilots *Disagreed* and the last pilot had no major exercise experience.

9. If qualified in the LANTIRN mission, did the Major Exercise accurately employ this mission?

- Yes
- No

The results of question 9:

1. 1/3 (33%) Yes
2. 2/3 (66%) No

#### Telephonic Interview

In addition to the surveys, a telephonic interview was conducted. The individual contacted for this interview was a former Block 40 squadron commander. He commanded a squadron for a period of two years. Before assuming the command of the squadron, he was an operations officer for just over one year in a different Block 40 F-16 squadron. The interview was very short and only two questions were asked. The answers included in this survey reflect a paraphrased synopsis of what was said. The following section contains the questions and answers.

Question: What event or aspect of the MAJCOM requirements had the most impact on your squadron's ability to conduct realistic combat training?

Answer: "The annual night requirements proved to be a very difficult challenge for the training folks to manage. We had to plan on the squadron being deployed for four months out of the calendar year. That meant, we had to pack one years worth of night flying into eight months. In addition, the weather attrition at Hill AFB during the winter months meant that we had to flex our six-month training plan when the weather washed-out our night flying. The driving factor was we were simply over-tasked with night sorties. I only needed to fly about half of the required sorties in order to stay proficient at night task."

Question: If you could change one aspect of the training program, what would it be?

Answer: "From a squadron commander's point of view, I would like to have more flexibility in determining what type of requirements my pilots are subjected to. For instance, I've already mentioned the fact that a LANTIRN squadron is over tasked with night sorties. In addition, I feel like I have to fulfill specific requirements that no longer have merit in today's type of flying. Take the dive-bomb delivery—I have an annual requirement to complete a certain amount of these deliveries, yet I do not see a combat need for this type of event. I think we do them because we've done them in the past and no one has given it any in-depth study. I think we do a good number of things because of training inertia. What I mean by this is we simply do it because we've always done it—it's a perpetuating mentality that prohibits real change. Therefore, as a commander, I would like to have the ability to focus on specific training events, the ones the squadron leadership deems as important, and not have to worry about completing every single headquarters prescribed event."<sup>1</sup>

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<sup>1</sup> Interview with LTC Burt Field. LTC Field was the squadron commander of the 421<sup>st</sup> Fighter Squadron from June 1995 to June 1997. The interview was conducted in March 1998.

## CHAPTER 5

### CONCLUSIONS

This chapter will draw conclusions to the research accomplished during the thesis project. The chapter begins with conclusions about the primary survey, the secondary survey, and the telephonic interview. The chapter then makes conclusions about the training process and details areas for suggested further research. This chapter ends with a an answer to the thesis question.

#### Primary Survey

The primary survey covered six distinct areas: demographics, MAJCOM training programs, squadron leadership, major exercises, and flight leadership. As a reminder, this survey was administered to the F-16 pilots currently attending the U.S. Army Command and General Staff College at Fort Leavenworth, Kansas. This survey pool was specifically picked because the CGSC rules restricted a formal survey to include those outside of the Fort Leavenworth community without TRADOC approval. Figure 6 illustrates the conclusions found by the primary survey:

<u>AREA OF INTEREST</u>	<u>FINDING</u>
MAJCOM TRAINING REQUIREMENTS:	- SUFFICIENT FOR COMBAT PREPARATIONS - FURTHER STUDY NEEDED ON RAP
MAJOR EXERCISES:	- PARTICIPATION SIGNIFICANTLY INCREASED COMBAT EFFECTIVENESS
SQUADRON SUPERVISION:	- INCONCLUSIVE
FLIGHT LEADERSHIP:	- MODEST LINK TO COMBAT PREPARATIONS

Figure 6. Primary Survey Conclusions

## Demographics

The survey found that all of the respondents were highly qualified in the F-16. All of the pilots attained a minimum of instructor pilot status and 50 percent attended the USAF Weapons Instructor Course. This fact makes the views expressed by these pilots reliable to the extent of their experience level. All of these pilots had more than 1,000 flight hours in the F-16.

Although nine of the pilots indicated combat experience, only five flew in DESERT STORM. The distinction between DESERT STORM and the other combat operations is drawn because of the difference in the combat environment. DESERT STORM is the only operation which had a consistent adversarial threat, a threat which posed a real danger of being shot down. In theory, this threat exists in the other operations, but reality shows these environments more benign in nature.

Having made the distinction between DESERT STORM and the other operations, a cross-correlation between those with DESERT STORM experience and question 4 was accomplished. This correlation found that out of the five pilots flying in DESERT STORM, four marked the *Agree* selection and one marked the *Disagree* selection when answering the question. This would tend to validate the notion that the peacetime training was effective and properly prepared the pilots for actual combat.

The conclusions drawn from the comments suggest a different story. Three of the five participants indicated they flew with a weapon or flew a mission profile never practiced before the war. Two pilots indicated little or no practice at medium altitude tactics. Fortunately, the environment was permissive enough for the American pilots to

adapt their tactics to the situation without incurring several losses. The British story was quite different. They flew the first few days of the war at low-level, and the results were not as desired. This type of flying was based upon their prewar doctrine. On a percentage basis, the British pilots lost more jets or sustain more battle damage than their American counterparts.<sup>1</sup>

### MAJCOM Training Programs

This section of the survey inferred that the MAJCOM training programs are sufficient for training for combat situations. All ten of the pilots agreed to the principle that the MAJCOM requirements enabled them to prepare for combat operations. One note, none of these pilots flew under the RAP program. Although the programs are similar, differences exist between the two programs. Therefore, a further study needs to be conducted to prove the validity of the RAP program. For the purposes of this thesis, the MAJCOM programs are found to be congruent to combat preparations.

### Squadron Leadership

The survey found that the squadron leadership plays a modest role in the training program. Squadron leadership defined as the squadron commander or operations officer. When cross correlating between question 6 and question 7, a diverging pattern develops. This is because question 6 is non-specific and thus results in ambiguity. A definition for the term “actively” should have been included in question 6. The attempt of the survey was to determine who in the squadron drives the training program and what was the motivating factor. As a general statement, flight commanders and operations officers

tend to worry about “filling the squares” while the weapons officers tend to emphasize tactical expertise. The purpose of this sections was to address the sub-question raised concerning priorities within a fighter squadron. The questions were designed to determine an answer to the sub-question. The survey did not validate an answer as to who was setting the training priorities and establishing the conditions of the six-month plan. The survey proved to be inconclusive on this point and further study is warranted.

### Major Exercises

The findings from this section reveal the pilots believed participation in the major peacetime exercises is an effective way to prepare for combat. Ninety percent of the pilots survey either agreed or strongly agreed that flying in the exercises increased combat effectiveness. A cross-correlation between question 10 and question 11 finds that there are tremendous benefits to flying in the exercises despite the fact that the threat presentation did not adequately reflect the next anticipated conflict. Seventy percent of the pilots believed the threat presentation at the major exercises were unrealistic. An analysis of the comments provided with the answer to question 11 finds that most of the pilots believe the threat presentation is too high at the exercises. This means that the adversary forces portrayed at these events have more lethality and capability than would be expected of expected enemy forces.

Training to the toughest challenge is not a bad way to conduct training, as long as the results are put in perspective. The majority of the pilots indicated a change is needed in the threat presentation at the exercises--make it the less difficult. If this occurred, the

success rate of blue air would increase but important lessons would be lost. It is better to enter into a conflict and be over prepared rather than find oneself overwhelmed. The concept gleaned from this study, leads to the conclusion that the results from the major exercises may not necessarily reflect actual expected combat performance--the actual results may turn out much better than anticipated. Although the overall results from a major exercise may not be exportable as to accurately predict future success rates, they remain a very important tool for combat preparations. The net conclusion from this section was that major exercises significantly increase combat effectiveness.

### Flight Leadership

Flight leadership proved to be a very difficult concept to quantify and measure. It is analogous to trying to determine a measurement for courage--it is tough to find a universal tool to assess the concept. Many of the respondents verbally communicated the fact that there were so many external forces at play in this issue--forces such as personalities, experience levels, base location, and leadership characteristics. In retrospect, the survey should have included more forced entry questions regarding this subject in order to separate these external factors from the idea of flight leadership.

Acknowledging this fact, the majority of the pilots surveyed felt the flight-lead organized daily missions in order to obtain realistic combat training. This contrasts with some of the written comments provided when answering question 14. The written responses indicated that fulfilling annual requirements was the most important factor a flight-lead should consider when planning the training objectives of a sortie. But, if this

idea is related back to question 5, then the argument is made that a flight-lead fulfilling annual requirements is inherently preparing for combat operations. This concept is nested in the belief that the MAJCOM requirements are sufficient for combat operations as indicated by the survey response to question 5. To summarize, this study concludes the currently system of flight leadership plays a modest role in combat preparations.

An analysis of the last two questions on the survey found that these questions did very little towards providing an answer to the thesis question. Although the responses were interesting and could provide ideas for further study, no correlation was possible between the written answers and the thesis question. As previously mention, more detailed questions should have been included in the survey covering the pertinent areas related to the thesis question.

#### Summary of the Formal Survey

The analysis of the survey found that the current peacetime training system is sufficient for future combat operations. When the answers to the questions are examined and cross-correlated, the conclusion is drawn that three out of the four components of peacetime training (MAJCOM programs, major exercises and flight leadership) are sufficiently linked to the act of pursuing training objectives inline with projected combat tasking. Although some areas, such as adversary threat presentation, could be modified to reflect a realistic scenario, the training system is sound.

That being said, the limitations placed upon the survey pool had a major impact on the research. Since the thesis question deals with Block 40 F-16 training, a preferable

survey pool would have been the pilots currently stationed at a LANTIRN base. Since this was not permitted by the MMAS policy in regards to off-post surveys, a secondary “informal” survey was needed to supplement the primary survey. The required approval period was prohibitive and therefore, restricted the number of respondents available for the primary survey.

In addition, the analysis revealed flaws in the primary survey. As the examination of the answers proceeded, the ability to cross-correlate between a number of answers was missing. This impacted the reliability of the answers. The deficiency of the survey reflects the author’s lack of expertise in the area of conducting surveys. Overall, this study concluded a positive correlation between three of the key areas of peacetime training and training for combat operations.

#### Secondary Survey

The secondary survey was conducted to supplement the primary survey. This survey covered three areas: demographics, training requirements and major exercises. The aim of this survey was to focus on Block 40 specific issues in order to obtain information about the thesis question. Two of the respondents replied by email and three were interviewed by the telephone. Figure 7 reflects the results of the secondary survey:

<u>AREA OF INTEREST</u>	<u>FINDING</u>
MAJCOM TRAINING REQUIREMENTS:	<ul style="list-style-type: none"> <li>- NOT SUFFICIENT FOR COMBAT PREPARATIONS</li> <li>- PILOTS PREFER THE OPS FACTORS PROGRAM</li> </ul>
MAJOR EXERCISES:	<ul style="list-style-type: none"> <li>- LANTIRN OPERATIONS ARE NOT REALISTICALLY FLOWN</li> </ul>
GENERAL TRAINING	<ul style="list-style-type: none"> <li>- ROUTINE LANTIRN TRAINING DOES NOT REFLECT ANTICIPATED COMBAT OPS</li> </ul>

Figure 7. Secondary Survey Conclusions

### Demographics

The demographics of the secondary survey pool contrasted sharply with that of the primary survey. Every single pilot in the secondary survey had less F-16 hours than those in the primary pool. In addition, all of these pilots are current in the F-16 at the time of the survey. Those pilots participating in the primary survey were all non-current at the time they were administered the survey. Whether this factor has an impact on the answers is beyond the scope of this study.

### MAJCOM Training Requirements

The secondary survey differed considerably from the primary survey over the effectiveness of MAJCOM training requirements. The majority of the secondary respondents had either a neutral opinion or a negative opinion about the statement that these requirements were sufficient for combat operations. One point of distinction needs to be highlighted, the pilots in the secondary survey are flying under the newer RAP program while none of the pilots in the primary survey had any experience under this

program. Since these two programs are sufficiently different, no correlation can be made by comparing the results of the two survey pools. A complete comparison of the two programs would have to be accomplished to draw any comparisons between the two programs. The overall conclusion is that pilots participating in the secondary survey had a negative view of the MAJCOM directed requirements as they relate to effective combat training.

The study of the secondary survey produced an interesting result. The pilots who flew under both the Ops Factors program and the RAP program indicated they preferred the Ops Factors system. This finding merits further study in a follow-up study. The study would have to determine why the pilots chose the Ops Factors program over the RAP system. Once this fact is determined, the next step would be to evaluate whether this system provided more effective combat training than the RAP styled system.

### Major Exercises

The prevailing view from the pilots is that the scenarios in the major exercises do not reflect combat expectations. In addition two-thirds of the LANTIRN qualified pilots felt that the major exercises did not accurately employ this type of mission in the scenario. Conspicuously absent from this survey was the follow-up question as to why pilots felt the way they did. This was an oversight during the survey administration. A single correlation can be made but since a secondary question is missing, no cross-correlation was attempted. The resulting conclusion will have to stand on its own without further correlation.

One of the sub-questions concerning the area of major exercises was the issue of exportability of the lessons learned. Another mistake was made on this secondary survey. The aspect of exportability was inadvertently included into the question dealing with major exercise scenarios. This resulted in ambiguity. The question was a two subject question but the answer was in a single “Yes/No” format. Due to this error, no conclusion is drawn about the exportability of the training gained at major exercises.

#### General LANTIRN Training

The secondary survey contained one question regarding day-to-day LANTIRN training operations. The question asked if routine LANTIRN sorties accurately reflected expected combat operations. Two-thirds of the LANTIRN qualified respondents felt that this was not the case. The conclusion is made that the routine LANTIRN mission contains elements which are not reflective of anticipated combat sorties. But the survey is incomplete as to why the pilots indicated this feeling. Once again, some type of follow-up question is needed to ascertain the reasoning behind the responses.

#### Telephonic Interview

The telephonic interview was conducted with a former squadron commander of a Block 40 F-16 squadron. The questions were open ended in format and the scientific principle applied is known as “expert opinion.” The commander was asked two questions and his answers turned out to center on MAJCOM directive training requirements. There was no attempt to collaborate the answers with another squadron commander. The conclusions from the interview are shown in figure 8:

<u>AREA OF INTEREST</u>	<u>FINDING</u>
MAJCOM TRAINING REQUIREMENTS	<ul style="list-style-type: none"> <li>- TOO MANY NIGHT SORTIES ARE WERE TASKED TO A LANTIRN SQUADRON</li> <li>- SOME REQUIRED EVENTS ARE NOT NECESSARY FOR COMBAT PREPARATION</li> </ul>

Figure 8. Interview Conclusions

The squadron commander made the comment that he felt he could keep his pilots proficient at night operations with fewer sorties. In addition, he made the conclusion that some elements directed by MAJCOM directives do not necessarily reflect tasks necessary for combat preparations. He used the dive-bomb delivery style to highlight this point.

#### The Training Process

The following sections of this thesis make generalized conclusions about the training process. These conclusions are based upon conversations with key training personnel and the examination of supporting documentation. This analysis will begin at the MAJCOM level and work its way towards the squadron level.

When initiating research for this project, conversations were held between the author and the headquarters personnel. An attempt was made to determine the history of the MAJCOM directives, beginning with the old GCC level requirements and ending with the current RAP system. During the discussions, it became evident that no one at the headquarters level knew how the GCC program evolved over the years. This was not a surprise. The typical officer in the training department is a pilot fulfilling his staff tour

at the headquarters level. The average length of these staff tours are just over two and a half years. The result of this process is a lack of corporate knowledge when it comes to long-term policies and programs.

The GCC program was phased out in 1996 and replaced with the RAP system. When asked about the development of the RAP system, one officer inferred that the many of the tasks required under the old GCC system were simply transformed into the RAP program. The question was then asked if any corresponding study was accomplished to verify the validity of the list of requirements and the answer was in the negative. Once again, the process appears to be a general effort to retain the old requirements and mold them into the new system.

Through these conversations, the reasoning behind the switch from GCC to RAP was gleaned. The RAP based system is tied to computer model. This thesis will not explore the particulars of this computer based system but this model enables the training personnel to tie the training program with the training budget. This enables training personnel the ability to forecast changes in the combat status (C-status) based upon the change of dollar amount input into the system. For example, recently the training shop was tasked to explore the impact of a 7 percent cut in the flying hour budget. The training shop was able to plug this figure into the computer and quickly determine that this would result in a loss of 6,340 flying hours and 30 percent of the F-16 pilots would lose their Combat Mission Ready status and revert to Basic Mission Capable.<sup>2</sup> So the RAP program, through a computer program, ties each requirement to a dollar amount.

The RAP program enables the training staff to translate mission task into a dollar figure--enabling those formulating the budget to assess changes in the system.

The disconnect occurs when trying to square the requirements with combat effectiveness. No systematic analysis was applied to each event tasked under the RAP program. When asked about this fact, the personnel at the training office stated the system used was called "professional judgment." This study is not criticizing the method, it merely attempts to highlight the fact that some form of scientific approach could be applied to the RAP system in order to validate the requirements.

Another deficiency in the training system was discovered during the course of this effort. A problem was discovered concerning the formulation of the DOC statements. As figure 9 illustrates, the DOC statement plays a critical role in the formulation of the squadron's training plan. What this study found was the CINCs often neglect providing annual inputs into the DOC process by way of their requirements/capabilities statement.<sup>3</sup> This results in training plans based upon old and often invalid assumptions. Even though the DOC is theoretically a product used by the CINCs, other players involve themselves into the process. This often leads to overtasking of certain F-16 wings.

At the MAJCOM level, this study found aspects of the training process which impacted the training system as a whole. First, no detailed study was done to the system to validate requirements when switching from the old GCC system to the RAP system. The secondary survey indicates the night sortie tasking is extreme and an adjustment may be warranted. In addition, the DOC operation is not a pure process. Despite this fact,

units continue to use the DOC statement inputs in order to derive a squadron training program.

#### Topics for Further Study

This research identified several possible areas for further research. The first suggestion is an examination of the RAP program. The official implementation of the program occurred in the summer of 1997 and a year's worth of data is available for interpretation. Along with this study, individual requirements should be scrutinized. Instead of merely bringing forward the requirements from the previous program, a scientific assessment of the taskings will validate the specifications of the program.

The second suggestion relates to the comparison between the RAP program and the now abandoned Ops Factors program. One hundred percent of the pilots participating in the secondary survey indicated they preferred the Ops Factors program over RAP. This finding was discovered by coincidence, but it warrants further scrutiny.

The last area of suggested study goes at the heart of the thesis question. The research of this project was based upon an analysis of each part of the training system and then a conclusion was drawn about the system as a whole. A different approach, based on the objective testing of squadron pilots, may provide a better indicator of the training system. This type of evaluation would be based upon a set of evaluative missions, flown by squadron pilots, with the intent to measure success rate. This concept sounds similar to the concept behind the Red Flag missions, but the difference is based upon the scenario. In the study suggested in this paper, this evaluation would occur in a

standardized controlled environment and on a much smaller scale than a major exercise.

Once the results are recorded, the conclusions would enable a research project to scrutinize the entire process.

#### Overall Research Conclusion

This study used a combination of surveys, interviews and telephone conversations to evaluate the thesis question. This specific question was: Are the USAF F-16 interdiction squadrons properly training for the next conflict? After analyzing the four main components of the training system, the answer appears too inconclusive. The survey conducted from a population of F-16 pilots attending the Army Command and General Staff indicates the fidelity of the training system is sound and that combat preparations are properly training pilots for the next conflict. An opposing conclusion was drawn from a survey of F-16 pilots at Hill AFB. These pilots indicated problems with the components of the training system. In addition to the surveys, conversations with key personnel and a former squadron commander highlighted problems within the training system. Another study is required to properly discern an answer to this thesis question.

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<sup>1</sup> Winnefeld, James, and Preston Niblack. *A League of Airmen, U.S. Air Power in the Gulf War*. (Santa Monica, CA., RAND—Project Air Force, 1994) , 165.

<sup>2</sup> Steve Chase, Major, USAF, interviews by author, November 1997 to January 1998.

<sup>3</sup> RAND Project AIR FORCE publication. *Relating Mission and Training Requirements to Demands for Air Space and Ranges*. (1997) , 7.

## CHAPTER 6

### SUBJECTIVE PERSPECTIVE

I entered this project with the belief that the USAF's training policies in the F-16 community were not adequately meeting the needs of today's threat environment, and I wanted to prove this belief through a thesis. The MMAS program gave me the opportunity to accomplish this effort. But, as prescribed by the thesis process, I had to conduct my study based upon scientific principles and objectively processing the research data.

I feel confident that I could have written a persuasive essay convincing someone of my beliefs. But, when faced with the task of objectively proving my beliefs, the task became considerably more difficult. I had to determine a methodology to measure beliefs as they pertained to the issue of F-16 training. The MMAS program suggested several tools and techniques utilized in the scientific process and I determined a survey was the best means to realize my goal.

This being said, I felt extremely unqualified to produce a survey capable of accomplishing what was needed during this type of study. I had no experience building instruments of measure. I constructed the survey with little help from outside sources. Once I involved myself with the determining the results of the survey, I realized my efforts reflected a lack of expertise. In one of the early MMAS seminar meetings, the Director of the MMAS curriculum informed the class that one of the principle goals of

the program was to learn a formal process to conduct and present research in a disciplined manner. From my point of view, this goal was accomplished.

In addition to the survey, I found the geographical distance between a sizable F-16 population and myself further complicated the research problem. As alluded to in chapter five, the lack of ability to conduct a survey with a significant portion of the Block 40 F-16 community influenced the results. Of the pilots survey from the CGSC class, only one flew the LANTIRN mission at an operational base. This forced me into a dilemma--I could change the under-lying idea behind the thesis question or stick with the original theme and attempt to qualify the results. I chose the latter.

In addition to the mechanical aspects of this work, I wanted to bring up additional ideas associated with the training process. I could not find an appropriate place in any other chapter of this thesis, so I will bring them to light now. The first idea revolves around what is euphemistically called "bombing squares." These are the bombing events that F-16 pilots must accomplish every year in order to remain current and qualified in weapons deliveries. Normally, these events are conducted using practice bombs on a bombing range where ground personnel have the ability to record the location of each bomb impact. The bomb has to fall within a prescribed distance in order to count as a qualified event.

The problem lies in the fact that many of these bombing profiles are outdated or non-combat related, yet we continue to require our pilots to accomplish these activities each training year. Take the delivery low-angle strafe for instance. We still require F-16 pilots to employ their twenty millimeter gun in a shallow dive against a target. Although

this type of delivery is fun and most F-16 pilots enjoy doing this event, it has very little combat application. A similar argument can be made about other deliveries as well. Technology has provided the F-16 community the capability to deliver precision and accurate weapons without conducting the “normal” delivery profile. It is time to look forward and train like we expect to employ in the next conflict.

The second point I wanted to raise was the philosophical question of how does the F-16 community measure daily training. Right now, under the RAP based system, activity is measured as opposed to capability. The MAJCOM training directives, in conjunction with DOC inputs, tend to drive training along historical roles as opposed to specific tasks. The RAND study previously mentioned in this report suggest that the Air Force develop a training system that measures the capacity to accomplish specific duties called for in the Uniformed Joint Task List (UJTL).<sup>1</sup> I think this is an interesting proposition which may have potential for further study.

In summary, I felt the stated goals of the MMAS program were met. Although I feel an expert in the field of scientific research could have done much better, I learned a valid method of conducting an analytical process for developing a thesis. I hope this work provides ideas and conclusions that can improve our F-16 training system.

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<sup>1</sup> US Air Force Publication, Relating Mission and Training Requirements to Demands for Air Space and Ranges. Rand: (1997) , 7.

## APPENDIX A

**March 1998**

*4th FS 6 Month Plan*

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday																																																																												
<b>1</b> <b>TI/ACM/BSA</b> A/A CL TANK AG - SILS Day AAR	<b>2</b>  <b>DAY / DAY</b>	<b>3</b>  <b>4X4X4AA</b> <b>4X0X4AG</b>	<b>4</b>  <b>4X4X4AA</b> <b>4X0X4AG</b>	<b>5</b>  <b>4X4X4AA</b> <b>6X6X4AG</b>	<b>6</b>  <b>4X0AA</b> <b>6X0AG</b>	<b>7</b>  <b>SOUTH COM PROG: BERRY</b>																																																																												
<b>8</b> <b>TI/SAT</b> A/A CL TANK AG - SILS	<b>9</b>  <b>DAY / DAY</b>	<b>10</b>  <b>4X4X4AA</b> <b>4X0X4AG</b>	<b>11</b>  <b>4X4X4AA</b> <b>6X6X4AG</b>	<b>12</b>  <b>4X4X4AA</b> <b>4X0X4AG</b>	<b>13</b>  <b>4X0AA</b> <b>6X0AG</b>  <b>PB for T</b>	<b>14</b>  <b>SOUTH COM PROG: KOTT</b>																																																																												
<b>15</b> <b>SAT/(D)ACT</b> A/A CL TANK AG - SILS	<b>16</b>  <b>DAY / DAY</b>	<b>17</b>  <b>4X4X4AA</b> <b>4X0X4AG</b> <b>1X1X1INC</b>	<b>18</b>  <b>4X4X4AA</b> <b>6X6X4AG</b>	<b>19</b>  <b>4X4X4AA</b> <b>4X0X4AG</b>	<b>20</b>  <b>4X0AA</b> <b>6X0AG</b>  <b>IP MEETING</b> <b>VERIFICATION</b>	<b>21</b>  <b>YUGOSLOVIA PROG: CHUDY (SARA9)</b>																																																																												
<b>22</b> <b>OSAT/TAP</b> A/A CL TANK AG - TXTX INERTS NAAR	<b>23</b>  <b>DAY/NCTX2</b>	<b>24</b>  <b>2X2X0AA</b> <b>8X8X8AG</b>	<b>25</b>  <b>2X2X0AA</b> <b>8X8X8AG</b>	<b>26</b>  <b>2X2X0AA</b> <b>8X8X8AG</b>	<b>NO FLY DAY</b>  <b>USM DAY</b>  <b>WING LFE 421 NELLIS</b>	<b>28</b>  <b>YUGOSLOVIA PROG: WOLCOTT (BERRY)</b>																																																																												
<b>29</b> <b>LFE</b> A/A CL TANK AG - TXTX INERTS REQUEST DAAR Coordinate Saylor/ Nellis DACT TBD	<b>30</b>  <b>DAY / DAY</b>	<b>UTE DAY</b>		<table border="1" style="margin-left: auto; margin-right: auto;"> <caption>February</caption> <tr><td>S</td><td>M</td><td>T</td><td>W</td><td>T</td><td>F</td><td>S</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr> <tr><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td></tr> <tr><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td></tr> <tr><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td></tr> </table>	S	M	T	W	T	F	S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	<table border="1" style="margin-left: auto; margin-right: auto;"> <caption>April</caption> <tr><td>S</td><td>M</td><td>T</td><td>W</td><td>T</td><td>F</td><td>S</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr> <tr><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td></tr> <tr><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td></tr> <tr><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td></tr> <tr><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td><td></td><td></td></tr> </table>	S	M	T	W	T	F	S	1	2	3	4	5	6	7	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
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4TH FS TRAINING AS OF 2/21/98

## APPENDIX B

### FLIGHT-LEAD TRAINING PROGRAM

#### **FLUG BFM-1**

Offensive BFM (2 Ship) UP, IP

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Configuration: 2 x A/A Configured Jets, AIM-9M, Chaff and Flares desired  
Prerequisites: FLUG Academics, Phase Academics [ As determined by individual's program ]

---

#### **OBJECTIVES**

- ◆ Demonstrate proficiency in briefing, controlling, debriefing, and drawing lessons learned in offensive BFM
  - ◆ Maintain the offensive advantage
  - ◆ Recognize the T.C. and energy state of the bandit
  - ◆ Control overtake, angle off and range to close to a WEZ
  - ◆ Employ valid ordnance to kill
- 

#### **SPECIFIC MISSION TASKS**

- ◆ UP will brief, fly, and debrief Offensive BFM
  - ◆ Lead Form T/O
  - ◆ G check
  - ◆ Heat to Guns exercise
  - ◆ Perch BFM
    - 9k x 2
    - 6k x 2
    - 3k x ? (Start NLT Joker Fuel)
  - ◆ BD check
  - ◆ Lead form straight-in F.S.
- 

#### **NOTES**

- ◆ The UP will Draw the engagements. No ACMI use.
  - ◆ Reference BFM SPINS (Attachment 1) for specific gun exercises, BFM Admin, and perch setups.
  - ◆ A minimum of (1) 9k, (1) 6k, & (1) 3k set must be flown to be effective
-

### **PROFICIENCY REQUIRED**

- ◆ BRIEF: - Able to Brief Offensive BFM in a clear, concise manner to include flight lead techniques.
- ◆ FLIGHT: - Stay offensive on a majority of the setups and employ valid ordnance. Recognize and fix errors.
- ◆ DEBRIEF: -Able to reconstruct the engagements. Find a majority of the execution errors. Draw valid lessons learned.

### **FLUG BFM-2**

Defensive BFM (2 Ship) UP, IP

---

---

Configuration: 2 x A/A Configured Jets, AIM-9M, Chaff and Flares desired  
Prerequisites: BFM-1

---

### **OBJECTIVES**

- ◆ Demonstrate proficiency in briefing, controlling, debriefing, and drawing lessons learned in Defensive BFM
- ◆ Employ Defensive BFM to deny/negate WEZ / Ordnance and Range to the Bandit
- ◆ Properly use OBCM / IRMD to deny / defeat weapons
- ◆ Exploit bandit errors
- ◆ Employ timely effective guns jinks

---

### **SPECIFIC MISSION TASKS**

- ◆ UP will brief, fly, and debrief Defensive BFM
- ◆ Lead Form T/O
- ◆ G check
- ◆ Heat to Guns exercise
- ◆ Perch BFM
  - 9k x 2
  - 6k x 2
  - 3k x ? (Start NLT Joker Fuel)
- ◆ BD check
- ◆ Lead form straight-in F.S.

## NOTES

- ◆ The UP will Draw the engagements. No ACMI use.
- ◆ Reference BFM SPINS (Attachment 1) for specific gun exercises, BFM Admin, and perch setups.
- ◆ A minimum of (1) 9k, (1) 6k, & (1) 3k set must be flown to be effective

---

## PROFICIENCY REQUIRED

- ◆ BRIEF: - Able to brief Defensive BFM in a clear, concise manner to include flight lead techniques.
- ◆ FLIGHT: - Take advantage of bandits mistakes (recognize BDT WEZ and react appropriately), on the majority of the setups. Recognize and fix errors.
- ◆ DEBRIEF: - Able to reconstruct the engagements. Find a majority of the execution errors. Draw valid lessons learned.

---

## FLUG BFM-3 HI-ASPECT BFM (2 Ship) UP, IP

---

Configuration: 2 x A/A Configured Jets, AIM-9, Chaff and Flares desired  
Prerequisites: BFM-2

---

## OBJECTIVES

- ◆ Demonstrate proficiency in briefing, controlling, debriefing, and drawing lessons learned in Hi- Aspect BFM
- ◆ Effectively lead turn at every opportunity
- ◆ Exploit Bandit errors
- ◆ Maintain Energy advantage (when able) to out-rate bandit
- ◆ Maneuver to WEZ and employ ordnance for a valid kill
- ◆ Effective AAMD to deny/defeat Radar missile

---

## SPECIFIC MISSION TASKS

- ◆ UP will brief, fly, and debrief Hi-Aspect BFM
- ◆ Lead Form T/O
- ◆ G check
- ◆ Heat to Guns exercise
- ◆ Hi-Aspect BFM
  - Visual Butterfly
  - 2.5 nm Perch (UP is behind BDT)
  - Notch to Merge (UP notches)
- ◆ BD check
- ◆ Lead form straight-in F.S

---

### **NOTES**

- ◆ The UP will Draw the engagements. No ACMI use.
  - ◆ Reference BFM SPINS (Attachment 1) for specific gun exercises, BFM Admin, and perch setups.
  - ◆ All three sets must be accomplished to be effective.
- 

### **PROFICIENCY REQUIRED**

- ◆ BRIEF: - Able to brief Hi-Aspect BFM in a clear, concise manner to include flight lead techniques.
- ◆ FLIGHT: -Take advantage of bandits mistakes (recognize BDT WEZ and react appropriately), on the majority of the setups. Prevent Bandit from effectively employing ordnance on a majority of setups. Able to gain offensive on a majority of setups.
- ◆ DEBRIEF: -Able to reconstruct the engagements. Find a majority of the execution errors. Draw valid lessons learned

### **FLUG (D) ACM**

ACM Perch Setups (4 Ship) UP, IP, P, P

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Configuration:

4 x A/A Configured Jets, AIM-9, Chaff and Flares desired

Prerequisites:

BFM-3, Phase Academics[ As determined by individual's program

---

### **OBJECTIVES**

- ◆ Demonstrate proficiency in briefing, controlling, debriefing, and drawing lessons learned in ACM.
  - ◆ Properly establish and execute ACM Contracts
  - ◆ Maintain/ Maximize mutual support
  - ◆ 3-1 Brevity, SA building Comm
  - ◆ 100% valid Shots, no missed shots
- 

### **SPECIFIC MISSION TASKS**

- ◆ UP will brief, fly, and debrief ACM Perch Setups
- ◆ Take off as desired
- ◆ G check
- ◆ Fight:
  - 1 x 2.5NM Perch w/ TAP
  - 1 x 9K DEF Perch w/TAP

- Tap the Cap with remaining fuel
  - ◆ BD check
  - ◆ RTB as desired
- 

#### NOTES

- ◆ ACMI may be used
  - ◆ Reference ACM spins (Attachment 2) for specific setup, and TAP ROE.
  - ◆ A minimum of (1) 9K OFF Perch w/TAP and (1) Hi-Aspect Set w/TAP must be flown to be effective.
- 

#### PROFICIENCY REQUIRED

- ◆ BRIEF: - Able to brief ACM in a clear concise manner to include ACM Contracts and Flight Lead techniques.
- ◆ FLIGHT: - Kill the adversary and survive on a majority of the sets.
- ◆ DEBRIEF: -Able to reconstruct the engagements. Find a majority of the execution errors. Draw valid lessons learned.

#### FLUG TI-1

2 v X (VID vs BVR WPNS Free) UP, IP, P, P, [P, P]

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---

Configuration: 2 x A/A Configured Jets Desired, AIM-9, Chaff and Flares desired  
Prerequisites: ACM, TI-1 OFT, Phase Academics [ As determined by individual's program ]

---

#### OBJECTIVES:

- ◆ Demonstrate proficiency in briefing, controlling, debriefing, and drawing lessons learned on a Tactical Intercept sortie
  - ◆ Detect/Target/Sort all factor groups
  - ◆ Proper Radar Mech and interpretation
  - ◆ Clear, Concise 3-1 STD comm
  - ◆ Correct picture call
  - ◆ Proper intercept geometry
  - ◆ Proper engagement decision
  - ◆ Correct WEZ-in-Depth formation
  - ◆ 100% valid weapons employment
-

## SPECIFIC MISSION TASKS

- ◆ UP will brief, fly, and debrief TI
  - ◆ T/O as required
  - ◆ G check
  - ◆ 2 v X intercepts, increasing in difficulty as proficiency allows (IP Directed)
  - ◆ BD check
  - ◆ RTB, Simulated min fuel recovery
- 

## NOTES

- ◆ The UP will draw the engagement, No ACMI use.
  - ◆ Reference VID TI Spins (Attachment 3) for mission specifics.
  - ◆ (4) adversaries are desired, (2) are required.
  - ◆ GCI is desired, however, only core information will be given until the UP labels the picture.
  - ◆ The first intercept will be LOWAT with a 500 foot floor. Unless the UP must re-accomplish the intercept (IP Decision) a 5000' AGL Floor will be set for all additional intercepts.
  - ◆ A minimum of (1) low altitude and (3) total intercepts must be flown to be complete.
  - ◆ Terminate will be called after each engagement. At the "Fight's On" call each jet will reload.
- 

## PROFICIENCY REQUIRED

- ◆ BRIEF: - Able to brief Tactical Intercepts in a clear concise manner to include wingman Contracts and Flight Lead techniques.
- ◆ FLIGHT: - Able to control flight, execute tactics, keep SA on two groups and make smart engagement decisions. Based on group presentation, UP should kill one group and survive on a majority of setups.
- ◆ DEBRIEF: -Able to reconstruct the engagements. Find a majority of the execution errors. Draw valid lessons learned.

## FLUG TI-2

4/2 v X (BVR [WPNS Tight or WPNS Free] vs BVR WPNS Free) UP, IP, P, P

---

Configuration: 4 x A/A Configured Jets Desired, AIM-9, Chaff and Flare desired  
Prerequisites: TI-1 (If able, this ride should be flown after ACT-1), TI-2 OFT,  
Phase Academics [ As determined by individual's program ]

---

## **OBJECTIVES**

- ◆ Demonstrate proficiency in briefing, controlling, debriefing, and drawing lessons learned in a 4/2- ship Tactical Intercept sortie
  - ◆ Detect/Target/Sort all factor groups
  - ◆ Proper CAP Management
  - ◆ Clear, Concise 3-1 STD COMM
  - ◆ Proper engagement decision
  - ◆ 100% valid weapons employment
- 

## **SPECIFIC MISSION TASKS**

- ◆ UP will brief, fly, and debrief TI
  - ◆ T/O as required
  - ◆ G check
  - ◆ 4 v X intercepts, increasing in difficulty as proficiency allows (IP Decision)
  - ◆ BD check
  - ◆ RTB as required
- 

## **NOTES**

- ◆ BVR Wpns Tight or Wpns Free as determined by Squadron Weapons Officer.
  - ◆ ACMI Desired.
  - ◆ Reference BVR TI Spins (Attachment 4) for mission specifics.
  - ◆ (4) Adversaries required (this ride may be effective with 3 adversaries due to fallout).
  - ◆ The UP should expect to get a hostile declaration. Emphasis in the brief should be on a BVR engagement gameplan and declaration comm.
  - ◆ The first intercept should be LOWAT with a 500 foot floor. Unless the UP must re-accomplish this intercept (IP decision) a 5000 foot AGL floor will be reset for all additional intercepts.
  - ◆ A minimum of (3) Intercepts must be flown to be effective.
  - ◆ Terminate will be called after each engagement. At the "Fights On" call, each jet will reload.
  - ◆ (4)-Ship blue desired, (2) required.
- 

## **PROFICIENCY REQUIRED**

- ◆ **BRIEF:** - Able to brief 4/2 v Tactical Intercepts in a clear concise manner to include Flight Lead techniques.
- ◆ **FLIGHT:** - Able to control cap, flight, and employ a four ship to kill the adversaries and survive a majority of the setups.
- ◆ **DEBRIEF:** - Able to reconstruct the engagements. Find a majority of the execution errors. Draw valid lessons learned.

## **FLUG (D)ACT-1**

2 v X (VID vs BVR WPNS Free), DCA Lane defense v Sweep UP,IP P, P

---

---

Configuration:      2 x A/A Configured Jets, AIM-9M, Chaff and Flares desired  
Prerequisites:      TI-1, Phase Academics[ As determined by individual's program ]

---

### **OBJECTIVES:**

- ◆ Demonstrate proficiency in briefing, controlling, debriefing, and drawing lessons learned in Air Combat Tactics
  - ◆ Detect/Target/Sort all factor groups
  - ◆ Effectively execute tactic
  - ◆ Merge with advantage and mutual support
  - ◆ Kill at least one adversary at initial merge
  - ◆ Clear, Concise 3-1 STD COMM
  - ◆ 100% valid weapons employment
- 

### **SPECIFIC MISSION TASKS**

- ◆ UP will brief, fly, and debrief ACT
  - ◆ T/O as required
  - ◆ G check
  - ◆ 2 v X ACT
  - ◆ BD check
  - ◆ RTB as desired
- 

### **NOTES**

- ◆ The UP will draw the engagement, No ACMI use.
- ◆ Reference ACT Spins (Attach 5) for mission specifics.
- ◆ Red air will give only single group, sortable formations for the first two sets to enable the UP to concentrate on the ID and killing one adversary at the merge. Subsequent sets may either be a single sortable group or multiple groups outside FR (Factor Range).
- ◆ Set-up #1 from the ACT Spins will be used.
- ◆ (2) Adversaries are required. Dissimilar desired.
- ◆ A minimum of (2) sets must be flown to be effective.
- ◆ This mission will be a continuous VUL (25 min VUL time) with KIO's for DLO's (Blue Air Mort) or Safety. If Blue Air has defended for 25 minutes and gas and range time remains, then keep fighting until bingo. If Blue Air doesn't defend for 25 minutes, debrief as to why not.
- ◆ Both Adversaries must pass the MLL to regenerate.

---

### **PROFICIENCY REQUIRED**

- ◆ BRIEF: - Able to brief ACT in a clear concise manner to include flight lead techniques.
- ◆ FLIGHT: - Able to effectively execute tactics, keep track of factor groups, effectively merge and kill all bandits on a majority of the sets.
- ◆ DEBRIEF: -Able to reconstruct the engagements. Find a majority of the execution errors. Draw valid lessons learned.

### **FLUG (D)ACT-2**

**4 v X (BVR WPNS Tight vs BVR WPNS Free), DCA Lane defense UP, IP, P, P**

---

Configuration:      4 x A/A Configured Jets, AIM-9, Chaff and Flares desired  
Prerequisites:      TI-2

---

### **OBJECTIVES**

- ◆ Demonstrate proficiency in briefing, controlling, debriefing, and drawing lessons learned in Air to Air tactics
- ◆ Detect/Target/Sort all factor groups
- ◆ Effectively execute tactic
- ◆ Proper engagement decisions
- ◆ Clear, Concise 3-1 STD? COMM
- ◆ 100% valid weapons employment

---

### **SPECIFIC MISSION TASKS**

- ◆ UP will brief, fly, and debrief ACT
- ◆ T/O as required
- ◆ G check
- ◆ Defend lane for VUL (4 v X (D) ACT)
- ◆ BD check
- ◆ RTB as desired

---

### **NOTES**

- ◆ ACMI may be used (The UP must draw either TI-2 or ACT 2).
- ◆ During the first two engagements one presentation will be all groups Hostile and the other should be all groups Bogey.
- ◆ Subsequent engagements will be ID'd by GCI using a coin toss. If multiple groups are present, the last group will be the opposite of the first group ID. Example: Two

group range. The first is Hostile by coin toss, the second would be automatically Bogey.

- ◆ Reference ACT Spins (Attachment 5) for mission specifics.
  - ◆ This mission will be a continuous VUL (25 min VUL time) with KIO's for DLO's (Blue Air Mort) or Safety. If Blue Air has defended for 25 minutes and gas and range time remains, then keep fighting until bingo. If Blue Air doesn't defend for 25 minutes, debrief as to why not.
  - ◆ Set-up #3 from the ACT SPINS will be used.
  - ◆ (4) Adversaries are required (this ride may be effective with 3 adversaries due to fallout).
  - ◆ A minimum of (2) sets must be flown to be effective.
- 

#### **PROFICIENCY REQUIRED**

- ◆ BRIEF: - Able to brief ACT in a clear concise manner to include flight lead techniques.
- ◆ FLIGHT: - Able to control 4-ship CAP & commit to effectively execute tactic, keep track of factor groups, merge and kill all bandits on a majority of the sets.
- ◆ DEBRIEF: -Able to reconstruct the engagements. Find a majority of the execution errors. Draw valid lessons learned.

#### **FLUG TI-1 OFT**

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Prerequisites:      FLUG Academics, Phase Academics\*

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#### **OBJECTIVES**

- ◆ Detect/Target All factor groups
  - ◆ Proper Radar Mech and interpretation
  - ◆ Clear, concise 3-1 STD comm.
  - ◆ Proper intercept geometry
  - ◆ Proper engagement decisions
- 

#### **SPECIFIC MISSION TASKS**

- ◆ TI Intercepts IAW TI-1 Dance Card
    - 2 x 1v2 Intercepts
    - X x 2vX Intercepts
-

## **NOTES**

- ◆ A squadron IP is required to be effective
  - ◆ IP will provide comm support and be a phantom wingman and GCI as required.
- 

## **PROFICIENCY REQUIRED**

- ◆ Able to keep SA on (2) groups, make correct engagement decisions and employ valid ordnance to kill.

## **FLUG TI-2 OFT**

Offensive BFM (2 Ship) UP, IP

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---

Prerequisites: FLUG Academics, Phase Academics[ As determined by individual's program ]

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## **OBJECTIVES**

- ◆ Detect/Target All factor groups
  - ◆ Proper Radar Mech and interpretation
  - ◆ BVR AIM-120 Employment.
  - ◆ Clear, concise 3-1 STD comm.
  - ◆ Proper intercept geometry
  - ◆ Proper engagement decisions
- 

## **SPECIFIC MISSION TASKS**

- ◆ TI Intercepts IAW TI-2 Dance Card in the VID TI SPINS ( Attachment 3 )
- 

## **NOTES**

- ◆ A squadron IP is required to be effective
  - ◆ IP will provide comm support and be a phantom wingman and GCI as required.
- 

## **PROFICIENCY REQUIRED**

- ◆ Able to keep SA on 2 groups, make correct engagement decisions and employ valid ordnance to kill.

## APPENDIX C

### U.S. ARMY COMMAND AND GENERAL STAFF COLLEGE SURVEY

Control # 97-11-F16

This questionnaire provides information for completion of my Master of Military Art and Science at the U.S. Army Command and General Staff College. The title of the work is *F-16 Peacetime Training for Combat Operations*.

#### DEMOGRAPHICS

1. What is your highest level of qualification in the F-16? (Check only one)

- Wingman
- Flight Lead
- Instructor Pilot
- Weapons School Graduate

2. Which operation(s) have you logged combat time?

- DESERT STORM
- SOUTHERN WATCH
- PROVIDE COMFORT
- DELIBERATE FORCE
- OTHER

I have not flown in combat

3. Rate the following statement: *I felt my training prepared me for combat operations*

Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree  N/A

Comments: \_\_\_\_\_

## MAJCOM TRAINING PROGRAM

4. My training requirements were provided under which MAJCOM program?

- GCC Level Annual Requirements
- RAP (Ready Aircrew Program)
- Operational Factors

5. The requirements dictated by MAJCOM (Annual Requirements) are sufficient for combat preparations.

Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree

## SQUADRON LEADERSHIP

6. Squadron leadership (CC and Ops Officer) actively participated in the training program.

Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree

7. Who has/had the most influence on determining the training policy and objectives during day-to-day operations?

- Squadron CC
- Ops Officer
- Weapons Officer
- Flight Commander
- Other (please identify)

## MAJOR EXERCISES

8. Check the major exercises you have participated in. (Check all that apply)

- Red Flag
- Green Flag
- Cope Thunder
- Long Shot
- Other
- None of the above

9. Rate the following statements: *I felt the scenarios at major exercises accurately reflected combat operations.*

Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree  N/A

10. *Participating in a major exercise increased my combat effectiveness.*

Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree  N/A

11. At these exercises, did you feel the threat presentation adequately reflected your next combat situation?

Yes

No

I did not participate in any exercise

If no, why not? \_\_\_\_\_

12. If you could change one thing at these exercises, what would it be?

Threat Presentation  Force Composition  Kill Removal  Target Types

Comments: \_\_\_\_\_

#### FLIGHT LEADERSHIP

13. How would you rate your flight leads in regards to organizing the mission to obtain realistic combat training?

Outstanding  Good  Needs slight improvement  Poor

14. What do you consider the most important factor(s) the flight lead should consider when planning the training objectives for a sortie?

\_\_\_\_\_

15. If you went to war tomorrow (assuming you were current), what do you think would be your main strength/weakness would be while flying combat missions?

Strength \_\_\_\_\_

Weakness \_\_\_\_\_

16. Any other comments concerning the training programs for the F-16?

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### U.S. Air Force Publications

U.S. Air Force, *Multi-Command Instruction 11F-16, vol 1*. Langley AFB, VA.: Department of the Air Force, 1997.

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